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AMERICAN VETERINARY REVIEW,

EDITED BY

PROF. A. LIAUTARD,

Foreign Corresponding Secretary of the Central Society of Veterinary Medicine (Paris),
Honorary Fellow of the Royal College of Veterinary Surgeons (England).

ROSCOE R. BELL, D.V.S., and

ROBERT W. ELLIS, D.V.S.

WITH THE COLLABORATION OF

Prof. W. J. Coates, M.D., D.V.S., New York-American Veterinary College.
Prof. O. Schwarzkopf, V.M., U. S. Army.
Prof. P. J. Cadiot, of the Alfort School, France.
Prof. W. L Williams, V.S., Cornell University, Ithaca, N. Y.
J. F. Winchester, D V.S., Lawrence, Mass.
Prof. S. Stewart, M.D., V. S., Sec'y A.V. M. A., Kansas City, Kan.
M. H. McKillip, M.D., V.S., McKillip Veterinary College, Chicago, Ill.
Claude D. Morris, V. S., Binghamton, N. Y.
W. J. Martin, M.D.C., President Illinois V.M. Association, Kankakee, Ill.
Wm Herbert Lowe, D.V.S. (Former U.S. Officer of the Port of New York), Paterson, N. J.
Geo. H. Berns, D.V.S., Brooklyn, N. Y.
Prof. H. D Hanson, New York City.
Prof. M. H. Reynolds, University of Minnesota, St. Anthony Park, Minn.
And several others.

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AMERICAN VETERINARY REVIEW.

APRIL, 1900.

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EDITORIAL.

THE TWENTY-FOURTH VOLUME.

The conditions under which the April number of the REVIEW goes forth to its subscribers are unique in its history. No subscriber will receive a copy of it who has not paid for it in advance. The reasons for this innovation on the part of the publishers was fully explained in the February and March issues; a repetition is here unnecessary. Suffice it that they were forced to adopt this rule by those who cared little for their obligations and received the benefits of the exertions of others silently and selfishly. We are, therefore, addressing for the first time a list of only such readers as appreciate the journal for the good it is endeavoring to accomplish, and who wish to help along veterinary medicine, while receiving the benefits of such a medium. Almost every one of them, in renewing their subscriptions, applauded the course taken by us, and assured us of their hearty support and sympathy. All of this is very grateful and encouraging, and gives us heart to pursue our self-imposed task for what benefits may flow to our beloved science of veterinary and comparative medicine. And now that the subject has been renewed we feel an obligation to state plainly to this devoted constituency that at the time this issue goes to press, we regret to say that many have not qualified to receive a copy of it. Perhaps when the REVIEW fails to make its accustomed monthly visit they will recant, and again find their way to the family fireside; we sincerely hope so, at least. We have left, however, a very respectable mailing list with which to begin Volume XXIV; but in order that the REVIEW may not halt in its forward march this list must be materially increased. We shall do our utmost to accomplish this by publishing a journal full of useful and interesting scientific material upon every phase of professional advancement, reflecting the pulse of veterinary progress with accuracy, guarding its interests and sounding the alarm when its welfare is endangered by internal or external circumstances. Our colleagues of the profession, who by recording their thoughts and experiences are the real makers of the journal—must unite to assist in this work of restoring the lists to their former proportions, expunged as they are of all unhealthy material, and rendered aseptic by the cleansing influences of the blue pencil. Each one should feel that it rests with him to secure at least one other fellow-veterinarian as a subscriber, knowing by his own experience that he will be doing his brother a real service, and elevating the whole profession by assisting in the upbuilding of the bulwark of progress—veterinary journalism. We shall be only too glad to welcome back any of those who forced themselves out by their voluntary action, and will guarantee them a brighter journal for the coming year than they ever had in the past.

EUROPEAN CHRONICLES.

SPIDERS' WEBS.—We all know what wonderful hæmostatic properties have for years been granted to spiders' webs—to those little networks, delicate but of doubtful clean appearance, and probably many of us have resorted to them to arrest hæmorrhage. Their value has been sanctioned by practice and endorsed by writers; they have for a long time been patronized by even high surgical authorities. In a recent publication, however, made at the Société Centrale of Paris, an alarm was raised against their use: they are hæmostatic, but can also be the carriers of infectious germs. Mr. Pecus had been asked to prescribe for a horse which had received several wounds; he ordered cresyl solution and bandaging; the hæmorrhage had been arrested by the application of spiders' web. Four days later the horse was affected with a confirmed horse-pox. The spiders' web used against the hæmorrhage of the wounds came from a barn, in which cows were kept, and the cows had had cow-pox. The vaccinageous dust held by the webs had been transported to the wounds of the horse. The contagion was evident. Nocard in relation to this contagion states that while he is not certain of it, the fact is possible, and deserved registering, but he opposed the use of spider web as an hæmostatic. Cases of tetanus of undoubted origin, by their use, have been recorded. In fact, the same can be said of many similar old remedies, such as the use of clay on the end of a ruptured umbilical cord, or of scrapings of raw potatoes on burns, or of cow manure in traumatism of the feet. It is the duty of veterinarians to educate the people, and guard them against the use of those remedies which, "if they do no good, may and often do great harm."

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ARMY VETERINARIANS.—The general reorganization of the army veterinarians is occupying the attention of the French Government, and legislation has been detained so long that I have been prevented from giving our *confrère*, Dr. Huidekoper, the information that he has asked of me to present to the Committee on Army Legislation of the American Veterinary Medical Association. But I have succeeded in obtaining the communication of a ministerial order which is not without interest. It refers to veterinarian candidates for the army.

When a graduate from a French veterinary school desires to enter the army, he has to go for a certain length of time to the military school of Saumur, where he follows a special military veterinary course. It is to this that the ministerial circular refers.

This curriculum consists in: (1) Exercises on the writing of reports, situations, proceedings, etc., to both professional and military points of view; (2) Thorough study of military veterinary hygiene while in station, on the road, in campaign, on railroads and on board vessels; (3) Special and practical study of feed; (4) Special course of military sanitary medicine; (5) Course of military horseshoeing; and, besides these, a special course of meat inspection on the diseases which prevail in large camps and the measures they require. Micrography, foreign languages and equitation complete the curriculum.

There is no doubt that after this, and only after this, the veterinarian is well prepared for his special work.

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EMPIRICISM IN EUROPE.—The science of veterinary medicine has made considerable progress for the last few years all over the world. The education given in the veterinary schools is now equal to that obtained in medical universities. The facilities offered to students, the thorough condition of the curriculum, the requirements demanded of all candidates before entering the schools and at the time of graduation, all are evidences of the importance that the profession has reached, not only in public estimation, but also in the eyes of the various governments. And perhaps the progress made in the United States is greater than in any other country except possibly England. In the United States, although the profession is yet only in its infancy, the practice of veterinary medicine is not allowed in many of the States except by regular graduates of an institution in good standing. In England the restrictions are still greater, as the essential requirements to permit one to practice are an English diploma, the one delivered by the Royal College of Veterinary Surgeons. England does not recognize any other degree, while the United States and some countries of Europe with them, we believe, are willing to recognize a foreign diploma, under some special requirements.

It is evident that the object thus reënforced by England and the United States is to kill empiricism, and it is no less evident that success is the result. In the presence of such, is it not surprising that Central Europe should remain so long without enacting laws to protect her veterinarians, and that they should permit not only empiricism to flourish, but even let it be encouraged by members of the profession, as the case was recently reported in the *Berliner Thierärtzliche Wochenschrift*, where a German veterinarian advertises a special course of obstetrics, practical, on *mannequins* and on living animals, for any one, with instructions in diagnosis, difficult labors, diseases, etc. After this, it seems that veterinarians in Europe have little reason to complain of empiricism. A. L.

FRENCH VETERINARY CONGRESS OF PARIS.

This congress will be held at Paris, Sept. 7, 8, 9, 10 and 11, 1900, at the same time as the international equine exhibition. The questions of the Congress will include discussions on such important topics as the inspection of meats from every point of view; the breeding of horses; the organization of a veterinary sanitary service; agricultural instruction by veterinarians, etc.

Foreign veterinarians are invited to send their adhesions and to take part in the discussions. The assessment (ten francs or two dollars) can be addressed to the office of the REVIEW. All adherents will receive the reports and minutes of the sessions of the Congress. A. L.

THE HORSE IN MODERN WARFARE.

The acute interest which our profession is taking at present in army matters must be intensified by the astonishing results which the horse has brought about in modern warfare. While the experience of our Civil War had taught us that the early victories of the Confederates were due to the mobility of their mounted troops, and that again the magnificent finish of this long and tedious campaign was the result of the finally organized cavalry brigades under Sheridan; while the short but brilliant war between Prussia and Austria in 1866 was won in six weeks by the energy and endurance of the Prussian cavalry, and while in the Franco-German War of 1870 the German cavalry was seen reconnoitring everywhere, but always on hand to decide severe and often doubtful battles; yet, notwithstanding all this recent evidence in favor of the horse, false prophets were not wanting in our time to tell us that cavalry would be no longer a factor in future wars by reason of the modern long-range rifle and the quick-firing gun.

The actual experience has proven the reverse to be true. Both in the South African war and in our campaign in the Philippines nothing has been accomplished without the horse. If we recall the events in Natal we have seen that the Boer horsemen were driving before them the English infantry, quickly surrounding them and securely locking them up in beleaguered cities. The relief expeditions also were failures as long as the Boers were in force. All this was the result of the mobility of the Boer on his horse. It is as a war correspondent rather graphically describes : " We never see the Boers ; they fight on their bellies and seem to be as ignorant of the use of legs as a boiled egg. If pressed hard they will mount their fleet horses and disappear and reappear without being more than accidentally hit. It is a case of the moving target. They follow our flanking movements as quickly as we can execute them," etc.

But this scene was changed as soon as Lord Roberts moved forward with his cavalry and horse artillery invading the Free State. The small Boer horse was not the equal of the big and enduring English cavalry mounts, and the Boers were not allowed to stop and to concentrate. Late reports also say that the Boer horses are giving out fast from insufficient food and disease, while the English mounts remain so far in good and healthy condition, thanks to the intelligent care of our English army colleagues. Veterinary Major Huntington reports that he has effectually prevented the spread of the dreaded " Natal horse sickness " by applying medicated nosebags to the horses at night, thereby preventing them from coming in contact with the dew of the grass which evidently harbors the germs of this disease.

Similar is the work of the cavalry in the Philippines. Before the advent of the American horse our people had become impatient about the slow progress of our army. Young's cavalry has changed all this in short order. Seven provinces were delivered out of the enemy's hands into ours in less than as many weeks by forced marches over slippery rice fields and constant skirmishes, and now only small cavalry patrols are going back and forth over the principal roads, bringing in a few stray men with rifles every day. About our horse a correspondent says: "Our big American horses are the dragon of the little Filipino's dream. At the sight of the galloping, yelling cavalrymen they never wait to fire a shot."

A fact which interests us greatly is the rapidity with which our horses become acclimated in the Philippines, and the ease with which they adapt themselves to an entirely new diet. They are said to relish the soft, succulent grass, and have quickly taken to eat rice and rice straw. A veterinarian writes us that if a seasoned horse is offered both oats and rice, he will prefer the latter, and he calculates that this will greatly reduce the expense to the government of keeping horses in the Philippines. All this, too, is against the prediction of some experts who were finding the horse an unclean and fragile creature and who were longing for the day of the bicycle and the automobile in warfare.

To sum up: The horse has once more demonstrated his adaptability to changed conditions of war, and is winning new laurels in bringing victory to his side by his good will, fleetness and endurance, as he has done in the past for hundreds of years. No doubt the War Department will quickly recognize these facts and prepare for future emergencies by developing the mounted service in giving to it still better horses, good horsemen as soldiers, keen officers as leaders, and well equipped veterinarians as guardians of the health of the horse. O. S.

VETERINARY SURGEONS FOR THE ARTILLERY.

The bill before Congress re-organizing the artillery contains the following section: "Sec. 10. That the Secretary of War is authorized to appoint for duty with the field artillery, under regulations governing similar appointments in the cavalry arm of the service, two veterinary surgeons of the first-class and two of the second-class, and that said veterinary surgeons shall have the pay and allowances of veterinary surgeons of cavalry of corresponding classes." This is the first time an attempt has ever been made to provide the artillery with veterinarians. We hope the bill will pass.

ORIGINAL ARTICLES.

THE FUTURE OF THE VETERINARY PROFESSION.

By W. L. Williams, V. S., Cornell University.

Read at Alumni meeting, School of Comparative Medicine of McGill University, Boston, Mass., Feb. 17, 1900.

I would define a profession as a branch of higher learning constituting an integral part of civilization and necessary to human welfare.

In outlining the future of our profession we must base it upon our past history and present condition, considering the forces at work, the obstacles in the path, and the progress thus far attained.

Functions now properly devolving upon our profession have been deemed essential to human welfare since the earliest dawn of history. More than 3000 years ago the Jews were interdicted by the Mosaic laws from using meat from animals which had died from disease.

In recent years we have come to see the importance of this law, through bacteriology and pathology, which have demonstrated the close relationship or identity of numerous diseases of animals and man, and have fully shown the importance of wholesome meat and dairy products.

The Mosaic law was tribal, and the animals killed were of their own flocks, for their own tribe, and the killing was supervised by one of their own number specially trained for the work.

While the population in our country remained largely rural, so that each family produced its own meat supply or procured it from an acquaintance, its wholesome character could be readily determined. When animals for slaughter were driven on foot from country to city they were freely open to observation.

With the growth of cities and specialization of industries in rural districts meat and dairy products were largely procured in distant parts of the country from unknown producers and transported rapidly in stock or refrigerator cars in a manner tending to cover both source and character, conditions highly conducive to fraud. Almost any practitioner in a meat-producing or dairying district can recall the disappearance of fatally diseased animals, which have evidently gone clandestinely to city or village market for human food. The Mosaic law (Deut. XIV. 21) interdicted the use of diseased meat by the Jews but permitted them to sell it to strangers or aliens. Our national meat inspection protects the alien and the stranger in a foreign state, and confines the use of diseased meats to the localities or communities producing them. Under our form of government the nation ceases its control at inter-state and inter-national food traffic and leaves each state or municipality to control its own food supply.

Modern advances in our knowledge of disease has engraved upon the mind of civilized man as deeply and indelibly as the law of Moses upon the tables of stone the necessity for care in the selection of meat and milk for human food. The laws of health are as divine to-day as when Moses received them on Mt. Sinai.

The future of our profession in relation to meat and milk inspection is as plain as it is inevitable. The national inspection will be increased and strengthened, and states and municipalities will be compelled to introduce systematic inspection in harmony with the needs of a civilized people.

Early in history efforts were made to learn the nature and stay the devastation of serious animal plagues which so often brought commercial ruin and loss of meat supply to and imperilled the health of individuals and communities and embarrassed the finances of nations. They rarely commit such appalling ruin now. The lung plague of cattle has been blotted out in America, Texas fever has been hemmed in and is being vigorously attacked in its indigenous soil, hog cholera is being hampered, new means for handling glanders and tuberculosis have been learned, and everywhere animal plagues are being controlled, ameliorated or eradicated. In the light of the progress made and obstacles overcome it is needless to say that its development must continue, that only the most superficial tasks have been accomplished, that other problems of equal concern must be solved, which will require more men, time, energy and ability than that already done.

The rude, gross work already done has merely served to uncover deeper, more complex questions.

For some years there has been much anxiety and interest in the future of our army veterinary service. With an abundance of cheap horses and very small number used for army purposes, the subject has not deeply impressed our War Department, and has led to occasional outbursts of impatience, but slowly the question is being worked out. The first apparent need for army veterinarians was during the Civil War, when we had no educated veterinarians, and non-graduates were employed to do the best they knew, some of whom were afterward continued as veterinarians to cavalry, being civilian employés responsible to the government, but the government not responsible to them.

Next graduates were employed on the same terms, then graduates only were employed, and finally graduate veterinarians must pass a civil service examination, but otherwise the old conditions exist, there being no rank and no material power, and hence no powerful appeal to the highest type of veterinarians, though there are always plenty of applicants for each vacancy.

I am an applicant for a position in the army veterinary service, having filed my application, endorsed by the worthy dean of our alma mater, and other eminent veterinarians more than 20 years ago, but there seems to be so many candidates that I have not yet received notice of an appointment.

The most serious obstacle to a better army veterinary service is the army veterinarians.

Instead of entering into a careful study of how to improve the service of animals in the army and publishing their results in either the army or veterinary periodicals, they have largely assumed the prerogatives of the army mule and expended their energy in " kicking " about their low pay and absence of rank. The needs for competent veterinary service in the army are constantly growing, and the status of the army veterinarian is advancing little if any slower than other branches of the profession. A competent service can only be attained by granting proper rank and pay and this will be done as soon as the war authorities realize the necessity and know where to secure the men.

We have also to deal with an element in our profession which many speakers and writers tend to keep in the background, as being less popular and fashionable, perhaps, because its votaries doctor ordinary horses, cows and dogs, and are at times dubbed ordinary horse, cow or dog doctors. Our journals exalt the official veterinarian and his achievements, associations discuss sanitary problems at greatest length, legislators appropriate moneys for the furtherance of veterinary sanitary science and college professors seem at times to almost advise their highest graduates to not sacrifice their talents on common practice. The self-educated or uneducated veterinarian is passing and several states are decently burying him by repressive laws for which there is now scant need.

They could not at once be replaced by well educated veterinarians, but chiefly by graduates of veterinary schools which could grant diplomas on short notice, easy terms and at prices within the reach of all. The lower of these dovetailed nicely into the upper ranks of the others with only a sheet of thin parchment paper between the two.

The late boom in horse breeding increased correspondingly the output of inferior veterinarians. The collapse of the boom caused many of them to feel that *their* profession was passing. They had fulfilled their mission, why not pass ?

Electricity has mercifully swept out of existence the street-car horse and his attending veterinarian. Other inferior classes of horses are threatened by mechanical devices.

Intelligence, close companionship, beauty of form and grace of motion, attainable only in living beings, guarantees a permanent place for the horse, and the passing of the lower types only enhances the value of those retained, so that the intelligent, competent horse, in field or on road, in the carriage or under the saddle, in peace or war, is as highly prized to-day in affection or gold as the Bucephalus of Alexander the Great or the chariot horses of the Olympian gods.

The permanency and increasing value of our other domestic animals is not questioned. The sanitarian treats his problems *en masse*, the general practitioner his patients in detail.

If the sanitarian saves 10 animals with one gross act and the practitioner 10 animals by 10 separate acts, each has rendered the same service and should have the same applause.

It is questionable if the deaths among dairy cows from tuberculosis greatly exceed those from parturient apoplexy. The monetary losses from spavin, ringbone and navicular disease combined, probably exceed those from any one contagious disease of horses. More persons are annually maimed or killed by vicious horses which could be rendered docile and safe by surgical interference than die from glanders, anthrax and rabies combined, yet the control of the contagious is very properly applauded, while the amelioration of the vices go unnoted, is almost untaught and in practice rarely applied.

In questions of breeding, selection, handling, feeding and stabling the veterinarian properly trained is capable of giving advice of inestimable value.

But the general practitioner is a sanitarian of no mean degree. A human life is worth the same whether threatened by a vicious or glandered horse.

The practitioner largely discovers and reports contagious diseases, sometimes without thanks from the sanitarian and with execrations from the owner.

General practice is the body, the foundation of veterinary science; sanitary medicine, meat inspection and others are branches.

The present status as pictured by some reminds me of the willow and the oak. Take a willow twig and stick one end of it in the sward—no matter which end—and it begins at once to grow, sends out forks just at or under the mud, each fork apparently trying to outgrow the other, each leaning away from every other in order to get more sunshine and appear more important than the other.

The oak starts from the acorn, grows a root first, then a trunk, and when of sufficient stature and strength sends out branches in noble symmetry and grandeur. Each is a tree, the oak by merit; the willow on a technicality. The oak is worth more a century after death than the willow in its prime. It seems inevitable to me that the future will demand and have a broadly educated, refined, enthusiastic body of general practitioners, with a substantial and ample preparatory education followed by thorough general veterinary training, a trunk, a body of solidarity, and then, after appropriate maturity and attainment of due self-respect, owing to special proficiencies or experience, certain individuals will be called out to constitute branches, spreading out broadly in perfect harmony, not antagonistic, each mutually helpful to the other, and supported by a competent, compact trunk.

Inseparably linked with the destiny of our profession stand the veterinary schools. A study of these only adds clearness and hope to what we have stated. The first schools were merely those required by the country, teaching a moderate amount of the veterinary knowledge of the time. They were private institutions, to a greater or lesser degree commercial in aim, doing their pioneer work well and rendering greater achievements possible.

Naturally they grew old and momentous changes followed rapidly. An affiliation was made by some veterinary schools with universities, a sort of quasi recognition of veterinary science as a branch of higher learning.

The universities finding that this loose union brought no serious disasters upon them, their next step was to officially and definitely recognize our science as a profession in the sense in which we have defined it, and created or adopted existing veterinary schools as colleges, and made them a living, vital part of their organization. Our alma mater was among the earliest, with the veterinary departments of Harvard and University of Pennsylvania, followed later by Cornell and New York.

More material recognition followed or even preceded. Our alma mater received financial encouragement from the Province of Quebec before becoming amalgamated with McGill University. Pennsylvania was aided by the state and through the liberality of friends and other colleges received material aid. If anything, perhaps still more praiseworthy aid to veterinary education was at times extended by the proprietors of private colleges by giving freely from moneys earned in other ways to the support of their cherished institutions, and giving, still more, their time and work, from which no financial reward could be logically expected.

The States of Iowa and Ohio early recognized the veterinary profession by organizing in connection with their state educational institutions veterinary colleges, and even these had been anticipated by Cornell University, which had granted a limited number of veterinary degrees and had recognized the dignity of the profession by placing one of her veterinary graduates upon the board of trustees.

Finally, the State of New York recognized more broadly than all predecessors the dignity and value of our profession by founding, equipping and maintaining at Cornell University a veterinary college, free to residents of the State of New York.

Veterinary education has passed forever from the realm of commercialism and cannot now be conducted in harmony with the needs of civilization except by the philanthropy of men of wealth or through state support.

The laboratory is replacing the lecture room : some other than the veterinary student must pay for the enomous increase in cost.

The new veterinary education is naturally looked upon unfavorably by the old. State and endowed institutions maintain faculties numerically less than the earlier type, pay more for their services, and expect more or all of their time and energy. The commercial institutions criticise the brief list of their teachers, and for their own colleges advertise an extended faculty list, practically unpaid, the professorships at times probably selling at a premium, the work being light and the advertising medium appearing to them good.

Some years since a trustworthy graduate of a college having one of the largest faculty lists, when asked incidentally regarding a certain professor of a major subject, assured me he did not know him, and that during his two years' regular attendance he had not seen nor heard of him, though during that time, to my knowledge, his place of business was but a few minutes' walk from the college. Another important teacher and officer of the institution, at near the same time, required a three-days' journey by fast express to reach the lecture-room and regularly spent his evenings at home with his family. Aside from advertising, it requires a greater number of such men than their total faculty list to equal one man of ability present and at work. The demand and requirement is for teachers at living wages whose whole time, energy, mind and soul is dedicated to his one work. More than that, the veterinary teacher of the future must be a student among students, a thorough investigator, a contributor to veterinary knowledge.

All investigators of veterinary subjects are valuable teachers, whether holding the title of professor in a college or not, and all holding professorships in veterinary colleges who are not students of and contributors to veterinary knowledge are frauds, and schools based upon a faculty consisting of such men are frauds of the vilest kind. In the future the value of a college faculty must be based upon the quality and quantity of teaching done supported by original research and contributions to our store of veterinary knowledge.

Another inevitable change in the near future is better college buildings and equipments.

A college professor recently wrote about a "livery stable" appearance in the front of some of our veterinary colleges.

Exploration of some of them from front to rear and basement to roof only emphasizes the comparison in arrangement, care and odor. So when graduates take offices in badly kept livery stables does it not make him feel as though he still saw and smelt his alma mater?

Several of our colleges have very creditable buildings conveniently located in reference to clinical resources, but most of these have no grounds beyond the walls of the building.

Notable exceptions to this rule are shown by the University of Pennsylvania and Cornell.

The former has tasteful and spacious buildings with ample grounds, in direct connection with the other parts of the university, while the college at Cornell enjoys as tasteful and commodious buildings, in as commanding a position as almost any of the great buildings on that highly picturesque campus.

The "livery-stable" veterinary college is passing, the union between the colleges and great universities is growing in closeness and solidity, veterinary professors are rendering like services with the same skill and devotion, they sit in the same university faculty, receive the same pay, move in the same university society as other college professors. We shall soon see generally, as has already been seen at Cornell, our profession recognized by veterinarians upon university boards of trustees.

A self-respecting university cannot long maintain a college whose graduates she cannot accept as educated gentlemen fit for association with other alumni, neither can the university suffer one of its colleges to remain long in a livery stable.

If one knows the colleges which educate the members of a profession he knows the profession.

The most hopeful sign to-day of the future of our profession is that those colleges requiring the highest entrance examinations and the longest courses of study with faculties rendering the greatest amount of service each, supported by the best buildings and equipments, are, whether viewed from the standpoint of increased percentage of students in attendance or of original published investigations by their faculties, the most prosperous and vigorous, while the shorter the course, the less work done by each member of the faculty, the more livery-stable like the surroundings, the poorer the showing in attendance in comparison with the past.

Future veterinary education, reflecting the future of our profession, will be more intensely a part of our university system, the graduates possessing high attainments, a general education in all parts of veterinary science coming first, the general practitioner immeasurably better prepared in surgery, obstetrics, medicine and other essential subjects, and from this well trained body can be drawn all specialists of a high order which exigency may demand.

In great cities, in connection with veterinary colleges, great animal hospitals will grow up, equal to those for man, where animals may receive equally scientific handling with like results, where valuable studies will be made for the welfare of domestic animals, for the economic interests of their owners and the nation, and where valuable lessons will be learned applicable to the diseases of man. These will not be built as commercial enterprises, but will be erected by philanthropists or states for the benefit of civilization. Their coming is the logical progress of events. We cannot say where or when, probably within one decade, surely in less than two, it may be here or there, but whether such structure rears its columns at McGill or elsewhere, of one thing we may even now feel assured, our *alma mater* will have played no mean part in building the foundation.

DR. WM. HERBERT LOWE, Treasurer of the A. V. M. A., has been added to the list of collaborators of the REVIEW for Volume XXIV. As the doctor is never a figure-head in anything with which his name is associated, our readers may expect something from his pen from time to time.

THE THERAPEUTIC ACTION OF PHENACETIN IN FEBRILE DISEASES OF THE HORSE.

By W. T. Campbell, V. S., Cincinnati, Ohio.

Having had considerable success by the use of phenacetin in febrile diseases, I thought an article on the same would not go amiss.

Phenacetin is an odorless, colorless and tasteless powder, soluble in alcohol and sparingly soluble in water, having all the antiseptic and analgesic properties of acetanilid but not the depressing effect. Its action is slower and more lasting and is never collective. It lowers temperature and decreases pain. It may be given in doses five times as large and is less liable to produce collapse than any other antipyretic.

From personal experience I find that drachm doses every three hours decrease abnormal temperature about one degree a day in most cases.

It is a great diaphoretic, and never leaves any bad effects. I have used it in almost all kinds of fevers, and have never found it out of place, and have found it to be a specific in influenza, pulmonary diseases, laminitis, gastritis and enteritis. In the above diseases I find it superior to perfect a sure and hasty cure. To show some of its actions I will give the history of some of the cases I have used it in from my call-book.

Case I.—A sorrel horse, belonging to Mrs. G., with pleuropneumonia, was brought to hospital on April 10th. He had been stabled all winter and had made his first trip against a cold rain, and when he arrived at hospital he was hardly able to walk. Great drops of sweat bedewed the body. Temperature 104°, heaving flanks, limbs outstretched, head depressed, ears and limbs cold and pulse fast and weak, with crepitant sound on auscultation. I at once ordered hot fomentations, blankets and pure air, a laxative of oil, terebinth and ammonia, and phenacetin in drachm doses every hour. On the following day I gave this every two hours, then every three, and so on until I was giving it three times a day, which was continued for five days, and on the 25th of April he was able to go to work.

Case II.—A grey mare, with azoturia, following œstrum season, had a very severe fever, and was down. After placing her in slings, removing the contents of the bowels and bladder with enæmas and catheter, I gave her powders containing one drachm each of phenacetin, iodide of potassium and salophen. This treatment was continued for ten days, when she was well enough to work.

Case III.—A roan horse, belonging to liveryman, was taken sick about noon, and was given up by one veterinarian, and I was called about 5 P. M. He was down and in considerable pain, but not rolling. The heat could be felt rising from the body and animal was wet from head to tail with perspiration. I ordered body and legs rubbed with sweet oil and oil of mustard and covered with blankets wrung out of hot water and gave him powders of two drachms each of phenacetin, caffeine and salophen every two hours. Next day reduced it to one drachm and then reduced the frequency as above case until sixth day; then gave phenacetin in drachm doses three times a day, and in two weeks was able to work.

Its sure and steady action makes it valuable in pulmonary diseases; while it does not interfere with medicines given to act on the bowels. It is one of the best febricides and it gives us a chance to keep the bowels in the best condition to suit our case. In scarlatina and epizoötic cellulitis it has a specific action, it being also an anodyne as well as an antipyretic.

This also makes it a great remedy for diarrhœa and inflammatory and painful diseases. It relieves pain and gives nature a chance to assist.

To sum it up, I find it the best antiseptic, analgesic, anodyne and antineuralgic in the pharmacopœia for any or all febrile diseases. If any of my fellow veterinarians have found it any other way I would be glad to hear from them or their success would be as welcome.

SERUM TREATMENT OF INFECTIOUS PNEUMONIA.

By T. B. Rogers, D. V. S., Woodbury, N. J.

Lately the writer has treated seven cases of infectious pneumonia with the anti-pneumococcic serum. The results warrant him in laying the matter before the profession.

In a stable of five heavy draught horses one of them developed this disease. It ran a typical course; almost complete consolidation of one lung, with temperature running between 105°to 106°F. for nearly a week, the patient then passing into a tardy though uncomplicated convalescence. He was treated in the routine manner by antipyretics (acetanilid), aconite, then strychnia and whiskey.

The next case ran three days with a like elevation and under like treatment. He then received 25 c.c. of the pneumonia antitoxin. The next day his temperature was 101° F., and it remained there. The lung consolidation disappeared quickly and the convalescence was hastened.

The third case when first seen had a temperature of nearly 106° with some pleuritis, moving with difficulty and evincing much pain on motion. He received 25 c.c. of anti-pneumococcic serum at 4 P. M. At the same hour next day he was much better, stiffness and pain disappearing, pulse more compressible and respiration eased. He was given a second dose of 25 c.c., and in twenty-four hours his temperature dropped to $100\frac{4}{5}$, the other symptoms being in like degree ameliorated. He got well and returned to work very quickly.

In the other cases the recoveries were equally rapid and uneventful. I may add that all received in addition to the antitoxin a drachm of acetanilid, with sufficient aconite to keep the pulse soft, three times daily, this being followed as the condition changed by one-quarter grain doses of strychnia *pro re nata*, and half teacup of sound whiskey in each pail of water. I may add that only one of the second series got more than one dose of the serum. In each case the serum was quickly absorbed; in twenty-four hours there was absolutely no infectious œdema.

Now, one swallow doesn't make a summer, but I think most of us must admit that the results were somewhat remarkable; at the same time we must not forget that to get good results the disease must be bacterial. The makers (the H. K. Mulford Company, of Philadelphia, Pa.) are very modest about it, claiming only that it is a bactericide, not an antitoxin proper, and one of their professional employés seems to be under the impression that pneumonia due to physical causes (traumatic pneumonia, using the term in a wide sense) is common, and that no benefit could of course be expected in this class of cases.

I am, however, of opinion that the diplococcus complicates most of these cases, and that the serum should be used in the hope that it would at least prevent secondary invasions of lung tissue and so protect the patients.

An interesting part of this experience is the prompt reduction of temperature, and if the serum will do no more than this and it turns out that its extended use is as absolutely harmless as in this series of cases, it will make a very valuable addition to our materia medica, for we are much in need of an absolute and safe antipyretic. The ideal drug of this class is of course *one that will diminish heat production and at the same time leave no depressive action on the heart or deleterious after effects on the tissues.* What we have to be content with at present is found in drugs of the coal-tar series—as antipyrine or acetanilid. These, of course, not only decrease production by their influence on the heat centres, but also increase heat dissipation, the latter function being decidedly at the expense of the organism; and while this is a step in advance of the heat dissipation pure and simple, with which our ancestors had to be content, still a step further to an ideal heat diminution is devoutly to be wished. I do not say this serum covers this ground, but it has carried these cases through for me quickly, safely, and pleasantly, and I shall use it again.

My thanks are due to Mr. Milton Campbell, the president of the H. K. Mulford Co., for his kindness in supplying me with serum and for the very "professional" attitude he assumed in the premises, making it in no sense a business or advertising matter.

POST-MORTEM INSPECTION OF SWINE.

By W. E. Howe, V. S., Assistant Meat Inspector, Chicago, Ill.

Read before Chicago Veterinary Society.

In dealing with this subject of meat inspection, perhaps it will be well for the benefit of those present who have not witnessed the killing of hogs on a large scale to give a little idea of how the work is accomplished.

The inspector is on the bench with the workmen who remove the viscera from the carcass. The hogs are hung on an iron rail by means of a pulley which has a double hook to catch the gambol stick. They are then moved along the rail by means of an endless chain, running parallel to the rail, which has fingers projecting to catch behind the pulley and move it along, so the hog is in constant motion. The inspector is provided with a seat, usually at the end of the bench, and so situated that the hogs pass on review so closely that the inspector can touch them without rising from his seat. The viscera is dropped on the bench beside him, where he has a good view of it. Thus the hogs pass, in different houses, at a rate of from two to seven hundred an hour. The inspector keeps watch and any carcass that shows evidence of disease is tagged. The viscera is also tagged and saved, the two tags bearing duplicate numbers, so that the viscera that belongs to any hog in question can be readily found. The diseased carcasses are run into a separate place from the others, so that they can be examined closely after the day's work is finished. Then they are disposed of as the case demands, either put into the offal tank or released. In this paper time will not permit me to cover all the diseased conditions with which we come into contact, so will only touch upon a few. But, first, what good reasons have we for condemning any of these diseased conditions which we find?

First.—For sentimental reasons.

Second.—There is a sufficient amount of good meat in this country that can be obtained at reasonable figures, so we do not need to eat any but what is free from disease.

Third.—For the effects it would produce upon the one consuming the meat.

As many of the diseases with which we come into contact most frequently are of bacterial origin, it brings up the question of how do bacteria produce disease? Many theories have been brought forward, at different times, but the theory which now is generally accepted is that symptoms and disease are caused by the chemic poisons produced by the micro-organisms. Here three possibilities present themselves. The organisms themselves may be poisonous, or the poison may be an integral part of them. Secondly, the micro-organisms may be intimately associated with, or may produce a soluble chemic ferment, which by its action on the body produces the symptoms of the disease and death. Thirdly, poisons may be produced by the cellular activity of the bacteria. The correctness of this theory has been tested by a large number of investigators, with the result that its correctness has been fully established. It is now known that the pathogenic germs grown in meat broth and other culture media, elaborate chemic poisons which when injected into animals induce, in an acute form, one or more of the symptoms of the disease caused by the micro-organisms. It can now be safely stated that every germ which produces disease does so by virtue of its chemic poisons.

The diseases most frequently found by the inspector are hog cholera, swine plague, tuberculosis, metritis, peritonitis, pleurisy, pneumonia, bruises, tumors, nephritis, and hogs that have died just previous to time of slaughter.

We will turn our attention for a few minutes to hog cholera and swine plague, which are by far the most frequent causes for condemnation. The causes of these diseases are baccili, differing in many ways and alike in many respects. They are the *bacillus cholera suis* and the bacillus of swine plague, which I will not describe. In giving the pathological lesions, those only that may be readily seen by the inspector in his hurried examination will be dwelt upon. Probably the first symptom seen is the red spots which appear upon the surface. They may be small spots, a little larger than a pin-head, but close together, or much larger ones, the size of a pea. Others may be close together, perhaps coallesced to form still larger ones, and I have seen other severe cases with scarcely any spots at all upon them. Still other cases will have a diffuse redness around the scrotal region and a red line along the underside of the abdomen. In some it will be confined principally to the ears, which will be much swollen and covered with red spots. In the majority of cases the spots will be thicker and better defined on the thinner and softer portions of the skin. The appearance of the intestines varies much with the severity and stage of the disease at the time it is seen. As they are dropped upon the bench beside the inspector they may not attract any particular attention. The lymphatic glands of the mesentery may be inflamed. If the intestine is slit the punctiform hæmorrhages may be found, or in more severe cases the button-like ulcers; still others will show the mucosa sloughed away for a long distance and the inflammation extending through the wall of the intestine showing severe inflammation and extravasation of blood into the mesentery and the surrounding fat. The kidneys also have small punctiform hæmorrhages in the cortex and frequently in the extremities of the pyramids. The peritoneum occasionally presents hæmorrhagic areas, especially upon the sides, and easily noticed against the fat, which forms a white background. The spleen is enlarged, swollen, full of blood, very soft and brittle, dark colored, almost black. The lungs present a varying appearance, sometimes only a few small areas of congestion will be seen, while in others larger portions will be involved in a pneumonia. Punctiform hæmorrhages may also be seen on the base of the tongue, on the heart, and in severe cases in nearly all parts. The lymphatic glands throughout the system are much enlarged, swollen, congested, and when cut appear to be full of blood. Sometimes the glands will appear to be inflamed only upon the surface.

The bones appear normal upon the surface, but when cut the cancellated structures will appear very black.

In swine plague the lesions are so similar to those of hog cholera that it is hard to distinguish one from the other, and the two diseases are seen together so frequently that it can not be done in the short space of time allowed us for examination. The principal difference seems to be that in swine plague the disease begins in the lungs, and spreads from there to other parts, while in hog cholera it appears to have started in the intestines and extended from there to other parts. But the pathological lesions are so similar that a positive post-mortem diagnosis can not be made without the aid of a microscope.

Why do we condemn for this disease?

First, for sentimental reasons.

Second, we find that the hog cholera bacillus produces a ptomain which has been called sucholotoxin, and a proteid substance called sucholoabumin. Experimentally these substances, in very small doses, are not fatal to experimental animals, but in larger doses they will produce death with some of the prominent symptoms of hog cholera. A properly regulated dose will produce a sickness for a short time, when recovery will take place and afterward the animal will show some immunity from the disease.

Dead Hogs.—One difficult point oftentimes is to be able to say absolutely whether a hog has died a short time before it was stuck and scalded, or whether it was poorly stuck so it did not bleed out well and consequently fell into the tub alive and was drowned while being scalded. In both cases, when the animal reaches the inspector it will show that it has not bled out well. The lungs, kidneys and liver will be full of blood in both cases. If the hog was poorly stuck and dropped into the scalding tank alive, there would still be the peristaltic action of the bowels, some twitching of the muscles and possibly some beating of the heart, while in a dead hog these would be absent. Sometimes in cases difficult to make a clear distinction, if they are permitted to hang in the cooler for a few days the dead one will show signs of decomposition. The dead ones are always condemned, no matter how well they may appear after they are dressed and hung in the cooler. The hogs frequently die from exhaustion, heat and asphyxiation. In these cases we would have in the flesh a large amount of the waste matters of the body, which have not been thrown off, and being full of blood, putrefaction soon starts, consequently the flesh would be filled with the ptomains of putrefaction, which are putressen and cadaverine. These ptomains are capable of producing strong inflammation and necrosis. Cadaverine is one of the substances which can set up suppuration in the absence of bacteria. In Asiatic cholera the necrosis of the intestinal epithelium and the muscular spasms are thought to be due to this same product.

Tuberculosis.—In tuberculosis the pathological lesions of the disease are so well known that I will only make a few remarks which will apply especially to the disease in swine. It originates most commonly from ingestion, so that the disease does not appear first and most prominently in the lungs and respiratory tract, but in the digestive organs and their accessory glands, principally in the liver and spleen. Here it is seen either as miliary granulations scattered in great numbers throughout the thickness of the organ, or else of rounded nodosities, which are yellowish white in color, varying in size from that of a pea to that of a hazel nut.

On section they appear sometimes softened in the centre, but rarely infiltrated with calcareous salts. Lesions similar to those of the liver may be seen in the lungs in severe cases, but generally there is found in these organs an innumerable quantity of minute gray granulations caused by generalization through the blood stream, in which case the liver, the spleen, the kidneys, the medulla of bones and the mammæ usually infiltrated with similar growths. Cases are sometimes seen in which the disease appears to be localized in a few glands. The tonsils and the pharyngeal or submaxillary glands are the ones most often affected. They become voluminous, hard and knotty, as they have undergone a true fibrous transformation; here and there small yellow foci are seen of a softer consistency, sometimes veritable purulent collections are found, either encysted or in communication with the exterior. If the caseous or purulent matter be subjected to an examination, tubercle baccilli are not usually found, but upon inoculation they are found to be present. The generalization of the disease, especially in the muscular tissue, is reported by several observers.

Why do we condemn for this disease?

I think there is not one present at this meeting who would hesitate to condemn a hog for tuberculosis. I condemn every one found that shows any symptoms of the disease, because in swine it becomes generalized so quickly, and the result of experiments upon this subject show that the muscle juice of tuberculous swine is often virulent. Another point worthy of consideration is the increased danger from the consumption of meat from tuberculous swine over tuberculous cattle, which is due to its greater tendency to become generalized in swine. The consumption of tuberculous pork by a person inclined to be tuberculous or who is afflicted with the disease in a latent stage, would be like taking a small dose of tuberculin and it would produce the same effect, that is, to awaken the disease afresh and start it on its deadly course.

"THE VETERINARIAN A FACTOR IN POLITICS."

By T. B. Newby, V. S., Pana, Ill.

Read before Illinois State Veterinary Medical Association, Feb. 21, 1900.

As the present century opens or closes, whichever arm of the argument you wish to accept, it finds us living in an age of ever and rapidly changing conditions; an age, indeed, in which the sluggard is remembered only in name; when the successful man keeps abreast of the tide and does not wait for that mighty current to catch him in its drift, until he awakes to activity and views his lost opportunity. A time when the struggle for political supremacy is strained to the last point of human achievement, and he must be both a strategist and tactician, to successfully reach the goal. The politician of the old school now rarely attempts an issue, by being next to the hearts of the people as a mass. With class arrayed against class, it does not require an Elijah nor a Daniel to see that this condition forebodes no good to our nation.

I believe this has been the cause of the veterinary profession wandering around in the wilderness so many years struggling for recognition. We are more or less disjointed with the times. We presented just and conservative petitions to the law-making bodies, relied upon their merits, and believed the men we had elected to office would successfully do the rest.

There were always some men in the profession doing their best and spending their money as well to consummate the attempted issues; while others, like a team unable to move their load, would give a little pull and stop, and some do much worse at times by trying to block the wheels entirely. Doubtless at times the executive never knew from personal acquaintance or correspondence that there was any veterinary interests in his district that he was supposed to legislate in favor of; if he did, as was often the case, he failed to render unto Cæsar the things that were Cæsar's.

Particularly is this true with the Army Bill. As American born citizens, taught to reverence our flag as one of the fundamental principles of manhood from our birth, emblazoned with our nation's history, emphasized just now when the world is looking upon us with wonder and admiration at the valor of American arms in foreign lands, and our navy upon the seas—these inspiring thoughts of loyalty intensify our feelings with odium, chagrin and mortification, when we remember that the much needed rank that our profession symbolizes has been ingloriously declined.

Are our aspirations in our proud army to be nothing more than in the dark ages? Is our profession in the army to be relegated far beyond that of less successful or chivalrous nations? These are the questions for us to settle. After repeated travesty at justice by the United States Congress, our efforts have amounted to simply this: A veterinarian appointed under the act of Congress approved March 2, 1899, is not a commissioned officer nor an enlisted man, but a civil employee. Compare this, if you will, with the other armies of the civilized world. In most of them the veterinarian enters the army as a lieutenant and by promotion may become a veterinary colonel or the intermediate rank. It is estimated in the German army that the veterinarian saves twenty times his cost, and doubtless if such an expediency were adopted in the American army, and the veterinarian was given like authority in supplying and equipping in common with his other duties, more than this might be saved our government. With this in view it strikes me that the citizen and taxpayer should be more interested than the veterinarian. The question may be asked, what is our duty as to political matters involving our interests in general? Am I admonishing you to become politicians? No, not in a special sense of its acceptance beyond the incentive of self-preservation. If I were, I should say few, if any callings are endowed with so many privileges tributary to influence through extensive acquaintances and subsequently numerous friends, which he might use to advance political or social ambition if he so elects. But, this is not the objective thought we desire to present. Sentiment, based on influence, is a vain thing to build on; but rather to be established is the endowment of a profession noble in its calling, so upbuilding in its every duty to society, that time cannot mar its inherency.

It is congratulating to know that our profession is rapidly developing this desired condition, and let us not tire in well doing, until we take our place as one of the first sciences of the land established in every branch of commerce or concentrated society.

To accomplish this means hard individual work, characterized by thoroughness, dignity and self-respect, which emphasizes and promotes character, and endows one with reserve intellectual power, such as Daniel Webster possessed when he made that instantaneous reply to Robert Y. Hayne, of South Carolina, in 1830, concerning the doctrine of nullification, or the strategy that Dewey possessed when he created that breakfast story while destroying the Spanish fleet in Manila Bay, and wanted to take time to make an inventory of his ammunition.

Legitimate tact judiciously used to impress the thinking people of the best merits of the profession is to be commended. Men of sense never confuse issues or choose the wrong time for their purpose. It is no uncommon thing to see men of high intellectual attainments incapable of self-support, because they lack certain qualifications of imparting their knowledge; wisdom is useful so far as capable of being applied.

There is to-day vast unhidden possibilities for the ambitious and resourceful veterinarian. Under the plan of American institutions, men rapidly climb the ladder of fame, because it is one of the possibilities for all, and that applies to us, and it is our duty to grasp the spirit, develop our latent faculties; and that which belongs to us we will have, because the executive officers and political assemblies cannot then help recognizing us as public benefactors, and our social position.

As it now exists it is a political matter, and whatever we receive we must fight for; as, in the language of David Harum, "There is many a hole in a ten-foot ladder."

"DOCKING."

By J. E. Ryder, D. V. S., New York City.

Read before the Veterinary Medical Association of New York County, March, 1900.

It is not my intention to enter into the history of this well known and ancient operation, but merely to briefly describe the different methods of operating at the present time, to present to you the legal side of the operation, and finally to ask your opinion whether we are justified in performing this very common operation of fashion.

The reason why I ask this question is that the "veterinary profession" gets the credit of every docked horse that travels our streets, but on investigating the subject I find that only about 10 per cent. of the docked horses of New York are operated upon by qualified veterinarians, fully 90 per cent. being docked by horse dealers, coachmen, grooms, and the self-styled professional dockers.

Twenty-five years ago the operation performed for fashion's benefit was far more extensive than at the present time, requiring from two to three weeks to complete all the details, for not only was a certain amount of the tail amputated, but caudal myotomy was also performed.

The *modus operandi* was first caudal myotomy, then the tail was placed in pulleys for two or three weeks, or until it would maintain an angle of 45°; then the final operation of amputation was performed. This was accomplished by parting the hair at the desired point, and then finely braiding it from the body down to that point; a stout cord, drawn sufficiently tight to interrupt the circulation, was then applied around the tail above the seat of operation; the tail was then laid upon a solid block of wood, and an axe, hatchet or cleaver was laid across the tail at the point of operating, and struck a sharp, quick blow with a mallet, and the amputation was accomplished; the hæmorrhage was then controlled by the actual cautery or a ligature of stout cord drawn around the tail close to the end, which was allowed to remain forty-eight hours, the stump after that time being treated as a simple wound.

Thus were the famous "fan-tailed" horses of twenty-five years ago made. Since that time surgery has made rapid advances, and the qualified veterinarian of to-day, when called upon to perform the operation, when injury or disease require it, operates in a far more scientific, skillful and humane manner; but the men who operate on the 90 per cent. for fashion's benefit have advanced but very little from the method of our fathers.

The method most popular among the laity to-day is to braid the hair from the body down to the desired point; a stout cord is then drawn around the tail above the seat of operation to interrupt the circulation; a heavy docking knife or shears, of which there are several styles, is then used in amputation.

These knives are large, heavy and of great leverage, the jaws being large enough to completely surround the tail; division is accomplished by a sharp, quick closing of the handles. It is immaterial when using one of these instruments whether you amputate at an articulation or in the centre of the vertebræ, as they will cut bone with little or no difficulty, being nothing more nor less than large, heavy bone forceps.

The next and last step of the operation is to check the hæmorrhage, which is done with a firing iron of peculiar shape at almost a white heat; this is applied to the end of the tail and held firmly to it, searing the tail anywhere from one-eighth to one-quarter of an inch. Some then place powdered resin over the seared end, and melt it with the still hot iron; others place a small quantity of hair over the end which is melted with the hot iron. This is done to form a thick, heavy covering or scab over the end of the tail; many do not use either resin or hair, completing the operation with the searing.

It is by this method that 95 per cent. of the tails are docked to-day. I have added five per cent., as fully half of the veterinarians use this method, on the ground that it is the quickest, easiest, and, lastly, it pleases the coachman.

Another method in operating is to prepare the tail in the same manner as in the last operation, but instead of amputating at any point, an articulation is selected; division in this method is accomplished with a heavy curved bistoury, a circular incision is made around the tail down to the vertebra, which is then disarticulated, and amputation is complete. The hæmorrhage is checked by tying a round piece of chamois or linen filled with iron or some of its preparations to act as a styptic around the end of the tail, drawn sufficiently tight to interrupt the circulation. This is allowed to remain forty-eight hours, when it is removed and the tail treated as a simple wound.

The last method is known as the flap operation. In this an articulation is selected, the hair is finely braided down to the desired point, then turned upwards towards the body, a rubber bandage is then rolled from the operating point upward and secured, which will effectively control the hæmorrhage. Others, instead of using the rubber bandage, use a rubber bandage or tourniquet; the tail is now thoroughly washed with some antiseptic. Next, either a four or a ten per cent. solution of cocaine is injected above and below the articulation to be operated upon. After waiting the usual time for the action of this drug, a long, straight bistoury is passed through the articulation from above and below. Then the articulation is cut through to the edge of the vertebra, when the bistoury is turned downward and a flap about an inch long cut from the side of the following vertebra; the bistoury is then brought back into the centre of the articulation, and the disarticulation completed; and the second flap cut on the opposite side in the same manner as the first. These two flaps are now brought together with five interrupted sutures, two above, one in the point, and two below; a layer of absorbent cotton, saturated with tincture of iron, is now firmly bandaged around the end, and the rubber bandage or tourniquet removed; the cotton and bandage is allowed to remain six or eight hours, and is then removed.

While there is more or less hæmorrhage following this manner of operating, it is never of any great amount, the tail is thoroughly washed the following day, and a small quantity of dressing powder applied; no further treatment is required for ten days; at that time the tail should be washed and sutures removed, and the one or two small points of granulations (if any) removed; cicatrization will be complete in two weeks; there is no danger of the sutures tearing out or breaking, as very little swelling follows the operation.

For several reasons I consider this to be far superior to any other method of operating, whether you operate for fashion or disease. It is painless and scientific, you have a natural end to the tail and not the exposed stump with its large cicatrix, and the complications are reduced to a minimum.

The self-styled professional docker tried to emulate this method, but failed, as he could not locate the articulations, but in order to overcome that difficulty had a docking knife made

V shape, and by placing this upon the tail he could divide the vertebra at any point and cut his flaps with a single closing of the knife.

As a result of using a knife of this kimd the vertebra was splintered in the amputation, and as a result abscesses, sloughing and gangrene frequently followed, and for that reason they denounce this form of operating. The complications most frequently met as a result of docking are tetanus, abscesses, excessive granulation, and sloughing of the vertebra; none of these, barring tetanus, will follow the flap operation, and tetanus will be of rare occurrence. In my opinion the others are caused by the excessive use of the actual cautery and splintering the vertebra.

An important question, and one that we are frequently asked, is it cruelty? My answer is that when performed in any manner except the flap operation, and then without the use of cocaine, Yes. That it is an unlawful operation when performed for fashion you all know, and any one performing it is guilty of a misdemeanor. While there is no special law on this operation it comes under the general law of cruelty, which is as follows, viz.:

Sec. 655. Overdriving animal. Failing to provide proper sustenance. A person who overdrives, overloads, tortures or cruelly beats or unjustifiably injures, maims, mutilates or kills any animals whether wild or tame and whether belonging to himself or to another, or deprives any animal of necessary sustenance, food or drink, or neglects or refuses to furnish it such sustenance or drink, or causes, procures, and permits any animals to be overdriven, overloaded, tortured, cruelly beaten, or unjustifiably injured, maimed, mutilated, or killed, or to be deprived of necessary food or drink, or who wilfully sets on foot, instigates, engages in, or in any way furthers any act of cruelty to any animal, or any act tending to produce such cruelty, is guilty of a misdemeanor.

The legal definition of cruelty is as follows, viz.:

Sec. 669. Definitions. 1. The word "animal" as used in this title does not include the human race, but includes every other living creature. 2. The word "torture" or "cruelty" includes every act, omission, or neglect whereby unjustifiable physical pain, suffering or death is caused or permitted. 3. The words "impure and unwholesome milk" include all milk obtained from animals in a diseased or unhealthy condition, or who are fed on distillery waste, usually called a "swill," or upon any substance in a state of putrefaction or fermentation.

A number of cases have been prosecuted by the A. S. P. C. A., and the operator invariably pleads guilty and pays his fine, while the owner, who is the principal offender and to my mind the most guilty party, goes free. I believe the operator has great pressure brought to bear upon him—that is, those veterinarians who occasionally perform it, as it means the retaining or procuring of a good client, and in these days of strife and rivalry the temptation is strong. At the same time I believe that if the A. S. P. C. A. could procure the conviction of a few of the wealthy owners of docked horses, the fashion would soon become unpopular and the owners suddenly become humanitarians, and that the members of our profession would be the first to welcome the era of fashion.

SPASMS OF THE MASSETERS, WITH COMPLICATIONS.

BY J. D. NIGHBERT, V. S., PITTSFIELD, ILL.

Read before the Illinois State Veterinary Medical Association, Feb. 21, 1900.

Under the above heading I shall call your attention to a few of the many cases of this disease or condition coming under my observation—not that I can give you the true etiology, but that I may add my mite to the very scant literature on the subject.

It is generally seen in warm weather and in animals that have been at rest for a more or less lengthy period, and usually seen after vigorous or extended exercise. A majority of the cases coming under my observation were in animals that were taken up from pasture and put suddenly to work. I am inclined to think that this condition arises in a great many cases from some gastric disturbance depending on disturbed nutrition and the circulation of impure blood through the cranial structures.

After somewhat prolonged exercise a profuse perspiration is noticed, and if exercise is continued this will soon cease and the animal becomes dry; then will be noticed an inability or lagging in harness, and on being brought to a standstill there will be some uneasiness, with spasm of the diaphragm and slight colicy pains, which soon pass away, followed by an inclination to wander around the inclosure or stall. At this stage may be noticed a slight turning up of the upper lip, owing to spasm of the levators of the lip, being in a tonic state, and the masseters are soon in the same condition. While the temporals are also involved, they maintain a clonic condition throughout the attack. Breathing is accelerated, the heart beats rapidly, but the pulse at the jaw is almost imperceptible; temperature high, varying from 105 to 108° F. After the initiatory stage the power of deglutition is lost. The duration of this condition is from a few to twenty-four hours.

Case I.—Aged roan mare, taken from pasture and put to work on a very warm day. About the middle of the afternoon she was noticed to be sweating profusely and inclined to stagger, and after resting a few minutes refused to go when spoken to. She was taken out and I was sent for. I found the patient as follows: Sweating considerably, hurried breathing, nostrils dilated, heart beating rapidly, pulse almost imperceptible, well marked spasm of diaphragm, mare wandering around, gait stilty, masseters in tonic spasm, temporals clonic, upper lip turned up and levators in tonic spasm, temperature 106° F.; unable to drink, would put her nose almost up to the eyes in water-bucket in vain attempt to get a swallow of water. Treatment.—A liberal abstraction of blood from the jugular, a hypodermic injection of atropine, and had the patient taken to shade, cold water continually applied to poll. I left one ounce potassium nitrate to be given in drinking water as soon as patient could swallow; told owner I would call again next morning. Mare became easy and quiet about midnight, and was left to herself for the rest of the night. When I called next morning found patient somewhat improved and very anxious to drink, but was still unable to swallow. I inserted a tube through nostril into œsophagus, attached the hose of a syringe, and gave her about two gallons of water, in which half an ounce of potassium nitrate had been dissolved. This acted like magic, and in a few minutes she was able to swallow and was anxious for feed. Ordered her kept in shade and fed lightly.

Case II.—Bay pony, taken up from pasture and driven into town, a distance of about nine miles. Symptoms similar to Case I, with well marked emprosthotonos; would place head almost to ground between the front legs with seemingly an attempt to turn a summersault. Treatment similar to above, but used tube about three hours apart. Symptoms soon subsided. Case did well.

Case III.—Bay mare with colt by her side; had been kept in a small paddock. Served early in the morning of ninth day and put in box stall. In the course of an hour or so owner noticed a slight spasm of the diaphragm, but as the mare appeared busy eating hay from a manger he thought there was nothing serious and left her until evening, when her condition was worse. I was called, and found patient with a well marked spasm of the diaphragm and masseters, etc. Mouth full of hay semi-masticated. Treatment same as previous cases. No improvement. Mare died at 5 A. M.

AN ENGLISH VETERINARIAN, advocating the standing method of castration, urges as an advantage that such a small number of instruments are necessary that they can be readily carried on the operator's bicycle, while by the old means 40 or 50 feet of rope would be cumbersome on the machine. In America the greatest argument against his contention would be that our stockmen would not permit a veterinarian alighting from his bicycle to have anything to do with his colts.

AT the examinations of the New York-American Veterinary College last month eleven were recommended to the Council of the University for the diploma.

REPORTS OF CASES.

"*Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.*"

"*Experience is by industry achieved,*
And perfected by the swift course of time."

HÆMATURIA IN A STEER—COMPLICATION.

By S. R. HOWARD, V. S., Hillsboro, O.

Oct. 9, 1899, I was called at night to treat a steer of Jno. Ridgeway's, near Samantha, O. His temperature was up a degree or two and his pulse somewhat accelerated; anorexia present. He would stand apparently all right for a period of about twenty to thirty minutes, then have a tendency to be a little uneasy, move a few steps, and then give several low, plaintive grunts, thus evincing more or less pain. Occasionally he would strain, raise his tail, open anus, and I have been informed from that time until he died the sphincter ani was very much relaxed.

Manual examination per rectum disclosed a few ounces of urine in bladder, and during straining his uretha pulsated slightly, and he would back and rest slightly against the wall.

He was at such times gentle and easily approached. I examined for "gut-tie," calculus in bladder, obstruction in sheath and penis. After carefully examining and watching him narrowly for at least an hour I discovered absolutely nothing to base a positive diagnosis upon. However, I observed one thing that somewhat puzzled me, and it was an enlargement or thickening several inches in length, tapering regularly to ends, occupying the urethra throughout the entire extent of the superior and inferior flexures of the penis.

Manipulation of the part caused no pain, save when sharply squeezed between thumb and finger and the finger then suddenly allowed to slip. This induced a slight twitching, especially of the flanks. His bowels had operated normally several times during the night. From that evening no one ever saw him urinate.

Owner said he had noticed upon several previous occasions a few drops of pure blood pass from steer's sheath, but thought not much of it.

I was in the country, time near midnight, and the air was real chilly. I was very, very weary, having driven fifty miles over the hills that day (Sunday), and had had no supper. There was very little water in the steer's bladder, and I thought that surely it would not be bursted by morning. The extent of whatever was in the urethra somewhat demoralized me in regard to operating. I knew it was an obstruction, and it's true I could have opened the urethra, but he did not need it then, and as he munched some corn and seemed rather comfortable by turns, I concluded to await developments until morning. I have said this steer was gentle, and so he was, even to the point of gentility, for as I was passing out the door to go to bed he raised his tail courteously and gracefully waved me a parting *au revoir.*

I arose early next morning and was the first to see the steer, and he presented all the classical symptoms of a ruptured bladder. That this was the condition of my patient I satisfied myself by manual exploration and performing paracentesis of abdominal floor. I then took breakfast, informed my patron he had best beef the steer because he was sure to die, and departed.

After my visit, upon numerous occasions I received the information, accompanied with sundry grins, that the steer had refused to die, was eating, that most wise and skillful talent had "fixed him up," and he was doing well! In the meantime I was being unmercifully chaffed and given the vinegar laugh by hollow friends with poisonous ridicule. Here was at least one case where "life was more terrible than death"—to me.

Four weeks to the day, Nov. 5th, being several miles from that farm, I called to see my former patient. I found him eating fodder and chasing the calves around the barn yard. No one being at home I cornered him and tied him up. Pulse very weak and fluttering—could not count it satisfactorily. Mucous membrane of nose had the appearance of that of a case of purpura hæmorrhagica, with very slight extravisation. Hair very loose, belly pendulous and about full of urine. His tenacity of life and remarkable vigor astonished me, and yet we were getting familiar.

Nov. 12th, five weeks to the day after I was called to see the steer, I received a telephone message that the steer was dead and about to be buried. I held an autopsy, and upon opening his abdomen so much urine ran over the ground that the spectators laid down rails to stand upon, so they would be out of the mud.

Bladder bursted, and in the penis, location as before mentioned, was an old and extremely firm clot of blood about four inches in length. I found no cause for former bleeding from penis. He lived exactly five weeks with a ruptured bladder.

I have seen a goodly number of steers with ruptured bladders, but I never before knew one to be in that condition and live over a week.

THE SCHMIDT TREATMENT IN MY PRACTICE.*

By A. G. ALVERSON, V. S., Bloomington, Ill.

Having had an opportunity several times to try the much vaunted treatment of Schmidt on what he terms "parturient paresis," and not being wholly satisfied with my results, I thought I would bring the subject before this society.

Case I.—Grade shorthorn; called in the afternoon a short time after cow had gone down and the second day after calving. My apparatus consisted of a new piece of rubber tubing, a glass funnel and a milk tube. I thoroughly cleaned the udder of the cow as she lay flat on her side, then disinfected the same. I immersed my apparatus in boiling water, made the potassium iodide solution with boiling water, cooled same by pouring from one pitcher to another and forced it into the udder by the law of gravity, thoroughly kneading same with fingers. Then rolled cow up on sternum and propped her up in that position. Gave fluid extract jaborandi on the tongue; had the rectum thoroughly raked, and left; telling them to keep her in shape through the night and I would see her in the morning. They telephoned me the next morning not to come, and I learned later that she died that day. Perhaps further treatment would have been beneficial, but they thought her getting worse, so wanted to save further expense.

Case II.—Grade Jersey, in the country; had been down, but regained feet and fell again while I was making an examination. Could not get up, and grew worse rapidly. Gave same treatment for udder, and left fluid extract of jaborandi to be given later with hypodermic syringe, if necessary. They gave two doses. This case recovered and was up next day.

Case III.—Grade shorthorn; well-marked case, complicated with eversion of the vagina, up to and including mouth of the womb, which was easily returned and kept in place. Gave same treatment as in No. II, but without success. Saw her again the next day and repeated treatment, but that night she died.

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* Read before the Illinois State Veterinary Medical Association, Feb. 21, 1900.

Case IV.—Had been down only a short time, but was bad; had treated this cow two years before for same trouble. The treatment was the same as in the previous cases, being minutely careful of every detail, and particularly so as to asepsis. The following morning I had another opportunity to see the animal, who was growing worse, although she had rested quite well all day. Died.

Case V.—This case had recovered under other treatment one year before and did not appear nearly as bad this time. Gave the Schmidt treatment in detail, and followed with stimulants; but the patient died.

Case VI.—An extra fine Jersey cow, had just gone down; had calved a few days previous. Gave full and careful treatment, but lost the patient.

Am sure I gave as careful detail as possible to the treatment of all these cases, and am inclined to think my poor success was due to the inefficiency of the same. Still I see that many are claiming great results from it. That it does exert an influence on the cases I will not question, as most of them, if not all, seemed to brighten up for a time and be far easier to care for and keep in position. Would like very much to be able to do something with it, as it is so much easier to care for the cases in that way.

TWO INTERESTING CASES FROM ILLINOIS.*

By J. F. PEASE, D.V.S., Quincy, Ill.

Case I—Epistaxis.

During the summer of 1899 a small, aged mule was brought in bleeding severely from the right nostril. Neither inquiry nor examination threw any light upon the cause other than perhaps general senile degeneration of the vessels. Owing to the small worth of the animal, I began to treat quite cautiously from the standpoint of expense, using douches of clear cold water, later adding subsulphate of iron, a remedy that has always proven valuable in these cases, but with no results in this case. Tried plugging the nostrils with cotton, but this also was unsuccessful. The blood accumulated in the posterior nares until it flowed over and out the left nostril. I then administered ergot in bolus and afterward as fluid extract, until 2 oz. had been given, and repeated the douches. After another half-hour the blood was still flowing in a small stream from the nostril, occasionally forming soft clots, which would be blown out, and the stream start again. It was principally to stop him from blowing out these clots that the nostril was plugged.

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* Read before Illinois State Veterinary Medical Association, Feb 21, 1900.

Dr. Barstow, of Quincy, a practitioner of human medicine, happened to be in my office at the time and asked if I had ever used intravenous injections of gelatin solution for hæmorrhages. I had not, but felt justified in trying it on this case.

Neither of us had any data as to the proper strength to use, but I decided upon a two per cent. solution as a trial. I made one quart of a $\frac{4}{10}$% solution of common salt in distilled water, sterilized it, dissolved the gelatin, and cooling to the proper temperature as rapidly as possible, injected it into the jugular vein by means of the apparatus I regularly employ for intravenous injections. This consists of a regular family syringe with hard rubber connections with a bottle arranged for an air trap near the delivery tube. The delivery tube is a soft rubber human catheter, into which the needle is wired. The whole is sterilized by running boiling water through it immediately before using.

When we began the injection the mule was rapidly losing strength and the blood seemed thinner than ever. By the time we had finished the blood had begun to string down from the nose, reaching at times nearly to the floor before dropping off.

Another case having taken me to the rear of the stable for about ten minutes, upon my return I found the hæmorrhage had stopped.

The animal was given salted water at intervals until his thirst was allayed, when he was sent home. He had no return of the trouble.

Since then, another physician has shown me a memorandum from some medical journal indicating a 2% solution of gelatin in normal salt solution, intravenously in hæmorrhages—exactly what I had used.

I believe, however, that most veterinarians consider $\frac{6}{10}$% to be normal salt proportion for horses' blood or for delicate membranes.

Case II—Local Paralysis.

A blocky-built team horse, while at work, stepped into a low place in the pavement, seemingly stumbled, knuckling with the front feet, and immediately displayed great pain, stumbling in front and even going down upon his knees.

He was removed to his stable with difficulty, where I saw him shortly afterward. He was then tramping around with pain and threatening to go down, occasionally knuckling with one foot, oftener the right one.

As he had been up in the stable the day previous, I suspected a light azoturia affecting the fore quarters. Bedding was thrown under him, when he voided his urine voluntarily, and its appearance (clear and light yellow) disposed of the azoturia diagnosis.

I gave at once 1 ounce bromide of potassium and 2 drams fluid ext. cannabis indica, to allay pain and irritability, knowing I had some form of spinal irritation to deal with. When he had quieted down somewhat, I began to move him up and down to study symptoms, and made out a partial loss of function in the extensors of the forearm and foot—a veritable "wrist drop."

Could it be a local myelitis, or was it paresis due to some ptomains absorbed from the alimentary canal? I couldn't decide, but could find no suspicion of lead poisoning in the history of the case.

I combined potassium iodide with the bromide, adding jaborandi, and kept this up in divided doses hourly during the afternoon, after which he was removed to my hospital. He fell to his knees several times on the way, but would place his hind feet well under him, rise up and plant his front feet on the ground. The pain abated, but the paralysis increased.

The muscles involved (the four extensors) are supplied with nerve force from the musculo-spinal or radial nerve. This nerve derives its roots from the first dorsal chiefly, which emerges behind the first dorsal vertebra near the head of the second rib, passes outward around the first rib to join the brachial plexus.

Some injury must have occurred to this nerve at or near its emergence from the spinal canal, or to that portion of the cord from which it arises.

This injury, possibly a sprain of the intervertebral ligaments or transversalis muscle, would be attended by swelling and pressure and possibly a blood clot. The paralysis was alike on both sides except as to degree, being more pronounced on the right side.

I kept the patient upon the iodide and jaborandi, supplemented with one-grain doses of pilocarpin, hypodermically, twice daily, for several days, when the pilocarpin was dropped and nux vomica in stiff doses added to the mixture above-mentioned.

About this time (the third or fourth day) I noticed a soreness upon pressure over the vertebræ at the base of the neck, near the location of the brachial plexus. I, therefore, applied a biniodide blister over the part, first on one side of the neck, then on the other, and repeated the application in two days.

Improvement set in at once with this treatment and the horse was taken home at the end of ten days much improved. He is now at work (a month later), but is not entirely well.

A TRUE CASE OF RABIES IN THE HORSE.

By Jno. V. Laddey, D. V. S., Arlington, N. J.

Was called one evening to see a brown gelding, said by the owner to have muscular rheumatism, because " he wouldn't let any one touch him." Upon arriving I found a very vicious animal, striking, kicking and biting at everything within his reach. The approach of any person would rouse it to a renewal of such unruly demonstrations.

There had been nothing wrong with him until noon that day, when the animal became very nervous and irritable and started kicking at nearby objects, a most unusual thing, as he had always been a very gentle horse.

After having been returned to the stable he gradually became worse and finally so furious that it was dangerous and impossible to go near him.

By his striking and kicking he broke down his stall partition. The tendency to bite increased, some tenesmus was present, his neighing became altered, his gait staggering, and salivation and grinding of teeth set in.

Everything seemed to irritate him ; he would make vicious lunges at beams and posts in his stall and bite at all objects held to him.

At an opportune moment I managed to get his pulse, which was very much accelerated, but I utterly failed in the effort to get his temperature.

I diagnosed the case as one of rabies and gave warning and prognosis accordingly.

Later the owner recollected that about two months preceding this incident a vicious dog, who had been housed in the stable for some time, had suddenly disappeared after having exhibited some very suspicious symptoms.

I saw nothing in the horse's actions by which the point of inoculation could have been traced.

I prescribed potassium bromide in the drinking water and instructed the attendant to keep the animal as quiet as possible and to prevent his being annoyed or unnecessarily irritated.

Early next morning the animal died, paraplegia having set in at the last. After procuring portions of the brain and the spinal cord, I sent the same to the New York Pasteur Institute for experimental inoculation, and received three weeks later the following reply:

> NEW YORK PASTEUR INSTITUTE,
> No. 313 W. 23d Street, NEW YORK, March 8, 1900.
>
> *Dr. John V. Laddey, Arlington, N. J.:*
>
> DEAR DOCTOR—We beg to inform you that the rabbit inoculated on Feb. 15th last with a piece of the brain which you sent us, died on Wednesday morning, the 7th inst., after having exhibited all the symptoms of rabies. * * * Very truly yours,
>
> N. Y. PASTEUR INSTITUTE, Per E. E.

DEPARTMENT OF SURGERY.

BY L. A. AND E. MERILLAT,

of the McKillip Veterinary College, Chicago, Ill.

ANTISEPTIC WOUND TREATMENT (CONTINUED FROM VOL. XXIII, PAGE 890).

Routine of Wound Treatment (Continued).

Removal of Foreign Matter or Tissues that will Become Foreign and Hinder the Healing Process.—Shreds, sloughs, sequestra, foreign matter and infected granulating surfaces should be promptly and intelligently removed from all wounds, either surgical or accidental. It is in this step of wound treatment that one surgeon may demonstrate his superior ability over another. The skilled surgeon will intelligently perfect his procedure by cutting away this or that part with a scissors, scalpel or currette, while the bungler either omits something or else jeopardizes the healing of the wound, if not the patient's life, by intruding upon forbidden ground.

The aim should be:

1. To remove all extraneous matter.
2. To rid the wound of all tissues that can be spared, and that will interfere with the healing process, as a consequence of their impaired vitality or death.
3. To make the wound as smooth as possible, so as to destroy all recesses capable of harboring wound secretions.
4. To "mechanically disinfect" the wound as far as possible by removing infected textures.

To accomplish these feats often requires the acme of surgical skill and judgment. In the case of surgical wounds they constitute the operation proper. Each of these steps should be completed on first treatment, with the exception of diseased bones and shreds of skin. It is frequently advisable to wait until the "line of demarkation" is distinct before attempting to remove a bony segment, because waiting will obviate the removal of a second piece, which usually exfoliates from a chiseled or sawed surface. As regards the skin the finest shreds should be preserved. The amount of skin that will reproduce itself is not large, and as the integument is an important factor in determining the size of the cicatrix it must always be considered poor surgery to thoughtlessly cut it away. And, again, shreds of skin carefully sutured will frequently serve as a protection to the wound for a few days, even if they must be removed later, and frequently such shreds will take on new life over a much larger area than was at first expected.

But aside from these two exceptions—bone and skin—the wound should at once be so perfectly "trimmed" that a second operation will seldom be necessary. The surgeon who overlooks a piece of wood in a punctured wound, a necrosed spine in a fistula of the withers, a segment of diseased cartilage in a quittor, a sequestrum in gnathitis, or even the shreds of a lacerated wound, will soon suffer the consequences of a lost professional reputation.

Hæmostasis.—After completing the preceding step the surgeon is then confronted with the task of arresting the hæmorrhage, which may vary from slight capillary oozing to the spurting of a large vein or artery. In either case hæmostasis is an important factor. If not in actually saving the patient's life, nothing can have more influence in the healing of a wound. A wound that is filled with blood cannot heal with the desired promptness under any circumstances and is always a fit field for septic processes. The practical veterinarian is, however, too well aware of the difficulties in this connection. It is very nice to read about applying torsion or ligating vessels, but when the feat is undertaken it is not so easy. The trouble is we can seldom find the vessel in the recesses of a wound to apply such treatment. The only vessel that can be satisfactorily ligated or twisted is the superficial spurting artery. The others located in invisible recesses can not be ligated nor even twisted. The moderate, mysterious, venous hæmorrhage that is just profuse enough to prove annoying and capillary oozing can be arrested by patient baling and compression, but when such bleeding is profuse no amount of ordinary patient efforts will accomplish the purpose, and the only recourse left is to pack and close the wound. The patient in the standing position soon becomes restless and the one in the recumbent position would suffer from being tied long enough to arrest these troublesome hæmorrhages. We are therefore justified in prolonging a procedure to arrest severe hæmorrhage only when the results would warrant. In most of the veterinary surgical wounds it is more practical to promptly pack and close a wound and then leave the subsequent steps of the treatment to be performed twelve to twenty-four hours later.

Wounds, for the purpose of hæmostasis, might be classified into: 1, wounds with profuse hæmorrhage; 2, wounds with moderate hæmorrhage, and 3, wounds with only capillary oozing, but from a strictly practical standpoint a better classification is found in the following:

1. Wounds with hæmorrhage that can only be satisfactorily arrested by immediate packing, or cauterization.

2. Wounds with moderate or slight hæmorrhage that can be promptly arrested by torsion, baling and styptics.

The first class include a large share of the surgical wounds, such as quittor, fistulæ of the withers, poll-evil, ablation of tumors, foot lesions, caudal amputations, castration, and many others too numerous to mention. In all of these wounds it cannot be denied that the results would be much better if in the course of the operation all the blood was controlled perfectly so that the remaining steps of the treatment—disinfection and dressing—could be done to better advantage, but that it is not always practical nor even possible to control bleeding in the many veterinary operations, except by packing, is a fact that all experienced veterinary surgeons are well aware of. Some wounds of this class are nicely handled by actual cautery, but, of course, that cannot be universally adopted on account of the interference with healing. But, as referred to above, in the great majority of surgical wounds the only recourse the veterinarian has that is entirely practical is to pack the bleeding wound with clean antiseptic wadding of oakum and hold it in place with temporary sutures or bandages, as the case may require. In twelve hours all danger of hæmorrhage is over, and when the temporary dressing is removed the wound can be closed and properly dressed without the annoyance always caused by blood. Such temporary waddings should only be left in place until they have fulfilled their mission, *i. e.*, hæmostasis, then they are promptly replaced with dressings which are conducive to the general welfare of the wound. The tension caused by the packing, which is always increased by the addition of blood, will entirely change the aspects of a wound if allowed to remain in place too long, and besides, the posssbility of sepsis is augmented. As a useful hint in veterinary surgery the importance of this method of arresting hæmorrhage cannot be overestimated.

The second class requires more delicate manipulation, and I might add patience. The slightest oozing cannot be immediately arrested under any circumstances without applying agents that will interfere with the integrity of the wounded tissues. Even the too liberal application of forceps pressure and torsion to oozing spots is by no means without its detrimental effects, for every speck of tissue that is so bruised adds to the inflammation and therefore retards healing. The forceps should then only be used upon the larger vessels and the minor ones controlled either by baling with dry cotton or with hot styptic solutions. A weak tannin solution applied to a wound at a temperature of 115° Fahr. has a wonderful effect upon oozing vessels and does not coagulate the albumen of the tissues sufficiently to do harm. Cold water has only a very temporary styptic effect. It actually increases bleeding if continued for considerable time.

In wound treatment we can only recognize permanent hæmostasis ; so, therefore, the tourniquet, compress, etc., used to arrest hæmorrhage during an operation belong to surgery proper.

A further study of the subject might be made by glancing at the various methods by which hæmostasis is produced :—

1. By compress packing.
2. By irrigation with mild styptics.
3. By forceps torsion and compression.
4. By ligation.
5. By cauterization.

Each of these methods has its special indications; compress packing when the hæmorrhage is profuse and there is no time to arrest it by other methods ; irrigations with mild styptics for capillary oozing ; forceps torsion for more profuse bleeding ; ligation for superficial spurting vessels ; and cauterization when prompt healing is not a consideration.

Secondary Hæmorrhage.—The subject of secondary hæmorrhage is of sufficient importance to warrant brief notice, but it is by no means as important in veterinary as in human surgery.

Hæmorrhage may again start in a veterinary wound the first, second or third day (or even later) after an operation from bumping a wound against the stall, lying upon a wound, or by moving when a wound is near a joint, but the more serious form is the one caused by the sloughing of a ligated stump of an artery or large vein. A vessel that is friable from disease may bleed when the stump sloughs away too soon, but under ordinary circumstances a vessel that is properly ligated, even though it be a very large one, should not cause any trouble. If the human surgeon can successfully ligate the renal artery and vein in ablation of a diseased kidney, the veterinary surgeon should certainly not fear serious results from the comparatively minor vessels that are met in the various operations and accidents.

The key to successful ligation is to have the ligating thread neither too large nor too small. The thread should be small enough to wound the internal coat of the artery so that the wounded endothelium may form a nucleus for the coagulum. It is also said that if the internal tunic is cut through its contractility will partially occlude the lumen of the vessel. If the thread is too large these results are not obtained, while if too small the stump may slough away too soon, and in either case secondary bleeding may be expected. The metacarpal and the metatarsal arteries can be safely ligated even without complying with these precautions, but the carotid and thyroid arteries and the thyroid veins require perfect ligation.

Wound Sterilization—Disinfection of Wounds.—After a wound is free from blood the next step is to attend to its disinfection. "Mechanical disinfection," previously referred to, constitutes one of the most perfect methods of ridding a wound of infective matter, but since such a feat can never be accomplished without causing hæmorrhage it must be done before one has gone to all the trouble of arresting the hæmorrhage. Surgical or mechanical disinfection having been attended to in the second step before hæmostasis, there remains to be discussed only "chemical disinfection," *i. e.*, the disinfection of wounds with antiseptic drugs.

A surgical wound made in a non-purulent area should require no disinfection whatever, if the surgeon's methods have been correct and no accident has occurred during the operation to carry infection into it. But accidental wounds and purulent surgical ones require perfect sterilization. It matters not how soon a wound is treated after the accident, it must be put through a systematic and intelligent cleansing process, even when the wounded body appears to be clean. It is never safe to regard an accidental wound "clean enough;" the circumspect surgeon acts under the supposition that infective wound organisms are everywhere and governs his treatment accordingly.

Here the reader might well be reminded of several points referred to in previous chapters: 1. *That wound organisms are more viable than the living animal cells.* 2. *That, as a consequence of their viability, they cannot be readily destroyed with antiseptics that will not also "kill" the wounded tissues.* 3. *That, without injury to the living animal cells, no form of sterilization will readily make septic area aseptic.* 4. *That the aim in wound treatment is to render organisms as innocuous as possible and then create conditions not favorable to their farther development.*

The reader who will but digest the principles which can be deduced from these simple propositions will have mastered the subject of antiseptic wound treatment, while the one who disregards them will ever be groping in the dark, if he does not give up the whole affair as a hopeless undertaking. When one examines a wound about the third day, after having treated it with great care, and finds it discharging a purulent secretion, the inclination is to entirely discard the idea of asepsis in veterinary surgery. Such should not be the case, however. Failure, or even failure upon failure, should always be met with the most searching inquiry into its cause. When a wound becomes purulent there has been an error in its therapeutics, some part of the technique has been faulty, and the duty of the surgeon is to ferret out the faulty step. Perhaps the irrigation was not intelligently executed, perhaps the unclean fingers were inserted into it, perhaps the sutures were doubtful, and so on through every item that was in any way related to the wound before and during its treatment. Furthermore, by studying these four propositions it at once becomes apparent that wound sterilization is not a simple matter that can be accomplished by mere washing of a wound with antiseptic solutions. It is of course true that pyogenic organisms are killed by immersion in antiseptic solutions of certain concentrations for a given time, but when the irrigation of a wound is prolonged in compliance with such facts established in the laboratory it must not be forgotten that the tissues also suffer from prolonged immersion. Chemical substances that will promptly kill organisms and not molest the tissue albumen do not exist, nor is it at all probable that any such substance ever will exist, in spite of the fact that such an agent would be of inestimable value. The more the subject is discussed the more apparent becomes the necessity of taking advantage of aseptic surgery when possible, instead of depending upon the doubtful possibilities of antiseptic surgery. The fact that an organism once located within a wound is really a tenacious enemy to dislodge should be a warning not to permit its entrance.

Given a recent accidental wound that has just been subjected to the treatment described in the foregoing steps, what form and manner of sterilization does it require? Granted now that it has been examined, trimmed, and all hæmorrhage arrested, what further should be done before it is finally sutured or otherwise closed? Let us take, for an example, a wound caused by the kick of a horse; one that has been exposed for several hours. The shoe has in all probability carried pus organisms into its deepest parts and the dust of the stable has no doubt polluted its whole superficial area. Now, if such a wound is simply bathed with an antiseptic solution and closed with sutures, then protected as well as possible, it will be discharging pus often in thirty hours, and in six days the whole affair bursts open and leaves an ugly wound, which is *always* unfavorably commented upon by the interested observers. What veterinarian has never heard the remark, "The stitches have all broken, come and sew it up again, doctor"? It is indeed a poor strategist who cannot find some logical excuse for such an accident, but the real cause in 90 per cent. of the cases is sepsis. Poor drainage, movements of the patient and tight sutures may all be the cause of a wound breaking open; but when properly sterilized the chances of such a disaster are materially lessened.

The first treatment to apply to such a wound is a patient bath of hot water at about 115° Fahr., scrupulously clean sterilizer when possible, and containing a small amount of mercuric chlorid or carbolic acid. One to 2000 of the former and 1 to 100 of the latter is strong enough for this purpose. The aim in this is to wash out clotted blood, loose shreds, pus or whatever the wound contains, and at the same time disinfect and take advantage of the invigorating effect of heat to a wounded tissue. The next step is to irrigate with a stronger solution, 1-1000 mercuric chlorid, 1-100 formalin, 1-30 carbolic acid, or 1-6 chlorozone may be used for this purpose. They should be applied by syringing quite forcibly into every recess for 5 to 15 minutes, or even longer, according to the probable amount of the infection, then the process is perfected by sprinkling lightly with europhen or iodoform. The former is readily applied to the minutest recesses of a wound by insufflation, and the latter if selected for the purpose is best applied by spraying with 5 per cent. to 10 per cent. iodoform ether. The wound is now ready to close, being as sterile as it is practicable for the veterinarian to make it. (*To be continued.*)

SURGICAL ITEMS.

Do you have trouble in extracting molars? If so, probably your instruments are faulty. There is no feat in the whole domain of surgery that requires more dexterity, more judgment and more specially constructed instruments than the extraction of the molar teeth of horses, and it is pretty safe to venture that no procedure is performed with less dexterity, less judgment and with less poorly constructed instruments. What we lack in the dexterity that can only be acquired by extensive practice might in a large measure be overcome if the instruments were properly designed. The manufacturers of instruments, who indeed seldom even see a horse and of course have no accurate knowledge of the requirements, are usually the designers of our dental instruments, so there is no wonder that the requirements are seldom met. We Americans who claim to be the very "masters of ingenuity" are far behind our European colleagues in this connection, because we trust all to the manufacturers and accept their designs as standard when in fact the instruments (I refer only to dental instruments) they furnish are scarcely worth their weight in scrap. In a subsequent issue the Department of Surgery will devote a chapter or two to dental instruments. Any suggestions from the readers of the REVIEW that will add to the value of the discussion will be highly appreciated and due credit will be given to such contributors. (L. A. M.)

Professor Williams, of New York State Veterinary College, promises the early appearance of a new manual on veterinary operations. The book, we are informed, will be confined to a lucid description of the technique of the more useful major operations performed by the veterinarian. Besides the original operations and methods of the author and other American practitioners the work will also include a compilation from Pfeiffer's Operations. While the author's intention is to supply the want of the student it is safe to predict that it will also be received with open arms by the practitioners. The veterinarian who does not operate continually finds a lack of knowledge of the minor details of surgical technique is the real obstacle. The value of a book that will remove this obstacle can hardly be over estimated. (L. A. M.)

Professor Moller in his new work on veterinary surgery says that the results from aseptic castration do not outweigh the advantages of the old method. He, however, does not fail to remind the reader that cleanliness can not be overdone, even when absolute asepsis is impossible. If the learned and skillful Professor Moller's "ordinary method" refers to dirty surgery of the American oöphorectomist, surely then he has left himself open to criticism. "Ordinary" surgery is never justifiable. In veterinary operations, and especially in castration, the rule should be to carry asepsis as far as practical. In the case of castration the operation, without additional cost and without much additional time, can be made an aseptic one to the point of applying an occlusive dressing, and no reasonable excuse whatever can be offered for not doing so, Moller's statement to the contrary notwithstanding. Suturing the wound and then protecting it in some way or other is of course neither practical nor desirable, but if the operation is accurately executed through each step and the patient is made to stand in a clean stall for five or six days sepsis will rarely progress beyond the scrotal incision, and even this may heal without the semblance of a septic process. A doubtful ecraseur or emasculator and unclean knives or hands applied to the cord which will afterward discharge a purulent secretion over the whole inguinal canal is the chief cause of septic sequelæ and not infection after the operation, as is generally supposed. (L. A. M.)

Europhen as a Substitute for Iodoform.—Europhen is an orange-colored, non-crystalline powder, containing 28 per cent. iodine, which, like iodoform, it liberates when brought in contact with wounds. It is inodorous and hence not objectionable from that standpoint. It possesses the unique and very much desired quality of adhering well to wound surfaces—a property iodoform does not possess—and its high potency as an antiseptic is observable on first trial. It promotes granulation and limits secretion quite as effectually as iodoform, and as a given quantity will cover a much larger surface, it is more economical. Europhen deserves a thorough trial in veterinary surgery and if it proves equal to iodoform, as evidence at present indicates, it must surely become its universal substitute. It is a product of the Farbenfabriken of Elberfeld Co. (L. A. M.)

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

OPERATIONS FOR RADIO-ULNAR DISLOCATIONS [*By F. Hobday, F. R. C. V. S.*].—This injury has been more or less common, but seems to be more frequent among young puppies varying between the ages of a few weeks to three or four months. The difficulties of the treatment consist principally in permanently keeping the bones in their normal positions, no matter what kinds of splints and bandages are used. Among many cases the following is recorded: A nine weeks old puppy had a congenital dislocation and firm adhesions had formed round the joint. The little fellow was chloroformed and the adhesions broken off, the bones replaced in position; but on the following day the trouble had returned. Anæsthetized again, an incision was made directly over the joint and the skin dissected as far as necessary to permit small holes to be drilled through the olecranon and the centre of the radius. Fine wire thread was passed through them and the two bones fixed into place. The wound was sutured and antiseptic dressings applied. With the exception of a little complication on the skin, due to insufficiently padded splints, the dog did well and after a few days showed considerable improvement. The bones remained in position and the dog did not seem to suffer the slightest pain, using his leg in walking, although not quite as freely as the others.—(*Vet. Record.*)

ECTOPIA CORDIS [*By H. McF. Anderson*].—A very unusual condition observed by the author in a calf, which presented a swelling on the near side, which he recognized for the heart. Throbbing at the neck was readily seen; pressure upon it was very disturbing to the animal; thoracic auscultation did not reveal any sound. The animal was slaughtered and the heart was exposed at the lower part of the neck, in front of the chest, with the apex pointing towards the head and its base towards the thorax. It seemed normal in structure and had a pericardial sac enclosing it. The large blood vessels passed through the arch of the two first ribs. The organ seemed elongated.—(*Vet. Record.*)

FRACTURE OF THE CRANIUM IN A MARE—SURGICAL INTERFERENCE—DEATH [*By W. M. Scott, F. R. C. V. S.*].—A mare probably kicked by another horse which got loose from its stall was found one morning with a cut over the forehead on the median line and measuring some 6 inches in length. Twenty-four hours after she showed evident indications of brain pressure: difficult motion, gait staggering, her head depressed, sight sound, pulse steady 45, temperature 105.1° F. The mare was quite restless when the wound was explored. Pressure on the right parietal bone produced convulsions, clenching of the teeth and nodding of the head. The following day the mare was chloroformed, and the wound being examined showed a cavity under the right temporal muscle, which being cut across exposed a piece of bone depressed and forced in nearly half an inch. This was removed at once and the cavity dressed antiseptically as thoroughly as possible. The animal at first exhibited some comfort from the removal of the pressing piece of bone, but she rapidly grew worse and died in the evening of the day she was operated upon. On examination of the skull it was noted that no fracture radiated from the depressed part, as might have been expected considering the age of the animal and the hardness of the bone.—(*Vet. Record.*)

FOREIGN BODY UNDER THE LARYNX OF A DOG [*By A. Wilsor, M. R. C. V. S.*].—After one day's hunting a dog was found unable to eat, with abundant flow of saliva. A splinter of wood had been found in the centre of the upper gums behind the incisors and a small wound on the left side of the frænum of the tongue. The next day the throat began to swell, and the following day ulcerated, discharging a fœtid sanguineous fluid. The swelling not subsiding, the author had another opportunity to examine the dog, and in probing the cavity of the abscess he felt a hard substance, which on removal proved to be a piece of hazel stick lying in the subcutaneous tissue slightly on the right side of the trachea. Ultimately the dog recovered rapidly. —(*Vet. Record.*)

FOREIGN BODY IN THE RUMEN OF A COW [*By R. O. F. Stewart*].—Of course every one knows how much foreign bodies found in the rumen of large ruminants vary, and while all kinds of objects have been mentioned and the manifestations that they have produced been described, it seems that new cases can always be found. The author had been called to visit a cow which had been for a long time under treatment, was gradually growing worse, and, whether tuberculous or not, the question of killing her was to be decided by him. When she was examined, Mr. Stewart, passing his hand over the left flank where tapping is performed, felt something hard. He cut upon it and found it to be a piece of wire. Pulling firmly but gently, the wire gradually came out. After exposing nine inches of the wire, it got fast, and the opening had to be enlarged. A plug of fœtid ingesta was then exposed, held by a joint in the wire where two other pieces of wire diverting internally were articulated. The entire foreign body was then extracted. It was an umbrella wire and stretcher, which, counting all, was about 20 inches in length. After a few days of convalescence the cow recovered. She had been grazing in a place near a house where rubbish had accumulated, and in all probability had picked up a piece of an old umbrella when covered with cloth.—(*Vet. Record.*)

REVIEW OF BIOLOGY.

ATTENUATION OF VARIOLOID VIRUS BY DESICCATION AND HEAT—[*MM. Coute and Duclert*].—Resorting to the results previously obtained on a method to obtain a large quantity of varioloid virus, the authors have tried to determine the effects of desiccation and heat on this virus. The œdematous tissue matter of a varioloid tumor is placed on a wire sieve above a wide crystalizing apparatus and the whole introduced into a sterilized exsiccator, which itself is placed for twelve hours in a freezing box, so as to allow the serosity which impregnates the tissue to run out as perfectly as possible. After that length of time the sieve is removed and the crystalizing apparatus is placed in another drying box containing calcium chloride in its bottom. This box is closed tight and put in the freezing box. The desiccation of the serosity goes on without formation of microbian cultures, and in various times according to the quantity and thickness. The virus dried in this condition forms a thin, yellowish crust, shining, easily broken. This is placed for a few days in an oven heated to 25° C. By continuing desiccation and heat the virus is gradually attenuated and a standard of virulency can be established. Inoculation of such a small quantity of virus diluted in sterilized water gives rise to local manifestations and very rarely to germatization. The dried residue obtained is sufficient to inoculate several hundred animals.—(*Soc. de Biol.*)

EXPERIMENTS ON THE ANTAGONISM MENTIONED BY SOME PATHOLOGISTS BETWEEN TYPHOID FEVER AND TUBERCULO-

SIS—[*By MM. Arloing and Demarest*].—Impregnation of tissues with complete cultures of bacillus of Eberth with filtrated toxine or with the serum of immunized subjects, when it is done before or after inoculation of bacilli of Koch, cannot prevent tuberculization of guinea-pigs. However, when done before the tuberculous inoculation, impregnation by serum seems to have increased in a small proportion the resistance of guinea-pigs to tuberculization. The ideas of practitioners who admit the antagonism between the two diseases are not supported by experimentation. Yet, it is not impossible that a period of arrest or a certain improvement may have been observed in some patients suffering with typhoid fever, if their serum had acquired properties analogous to those that exist in the serum of individuals artificially immunized.—(*Soc. de Biol.*)

REBUILDING SEROTHERAPY WITH SERUM OF MILK—[*By M. Leveboullet*].—It is principally by the salts it contains that the new product acts. Hypodermic injections of the serum, harmless to the skin, have no toxic influence on healthy or diseased organisms, and can attenuate or even cure the diseases characterized by severe organic debility. It stimulates vital force and assists in protecting the organism against infectious agents. The serum of cow's milk is a thin fluid, slightly greenish but transparent. It contains 7 to 8 grammes of mineral salts to the litre. To prepare it, the milk is coagulated with pepsine while heated at 40 or 50°. After six hours cooling off, the clot is thrown on a thin, fine cloth. The sweet milk is filtrated, neutralized with soda, when a deposit takes place, and isolated by filtering through animal charcoal. The fluid which passes is then filtered again and put in glass tubes. Introduced under the skin, it is absorbed as quick as water is. No mark of the injection is left if the operation is well done; the operation can therefore be repeated many times on the same spot. In man the dose varies between 5 and 25 c.c.—(*Acad. de Med.*)

NORMAL PRESENCE OF ARSENIC IN ANIMALS—ITS LOCALIZATION IN SOME ORGANS—[*By M. Ar. Gautier*].—The author has by most minute observations found that arsenic is constantly present in the thyroid gland of man, dog, pig, sheep, etc. It is never, or, in imperceptible doses, in the other organs, except the thyroid gland and the brain. In man he found 0 m. ge. 73 of arsenic in 100 grammes of thyroid gland. This small quantity is sufficient for the execution of a function which, though still unknown, is important. No thyroid without arsenic, and no health without thyroid. Arsenic is localized in the substance of the nucleus of the cells, the nucleine. —(*Acad. de Med.*)

COLLEGE COMMENCEMENTS.

KANSAS CITY VETERINARY COLLEGE.

The ninth annual commencement and banquet of this institution was held at the Midland Hotel, Kansas City, March 14, at 8 P. M., when the following gentlemen received the diploma of the college: Robert H. Carswell, Edward Makins, Jr., Claude M. McFarland, Willis H. Meadors, David C. Moberly, Charles A. Monney, Joseph W. Parker, Horace E. Rice, Wendell A. Knight, D. V. S., and William Folsetter, M. R. C. V. S. At the banquet a large number of the faculty and friends of the college were gathered, where, after the temporal man had been satisfied, the intellectual appetite was brought into activity by that prince of toastmasters, that painstaking, hard-working, conscientious and devoted veterinarian, Prof. Stewart, introducing Dr. I. J. Wolf, who delivered the faculty address. The diplomas were presented by Dr. C. J. Sihler and the class response was made by Dr. Joseph W. Parker. "Comparative Medicine" was the theme of Dr. H. C. Babcock, and "The Undergraduate" was championed by Mr. Arthur Trickett. Hon. R. J. McFarland spoke of the "Municipal Veterinarian," while J. A. McLane, Esq., dilated wisely upon "Veterinary Jurisprudence." Dr. W. Ross Cooper spoke upon the "Veterinarian and the Breeder," Dr. Wm. Folsetter closing the enjoyable occasion by considering "Veterinary Colleges."

CORRESPONDENCE.

THE WAY TO DO IT.

MAYAGUEZ, PUERTO RICO, February 4, 1900.

Editors American Veterinary Review:

"Do I sleep? Do I dream?
Do I wonder and doubt?
Are things what they seem?
Or are visions about?"
Is the veterinary college a failure?
Or is the horse doctor played out?

He came from God's country. I don't know if he had a diploma, but if he had may the Lord in his infinite mercy forgive the mill that gave it to him. Anyhow, he drew a salary, and had full swing to perpetrate his knowledge on several hundred unsuspecting quadrupeds belonging to your Uncle Samivil. He was equal to the occasion, however, and has left a trail behind blazed with an originality and brilliancy that can never be obscured. The department in which he belonged employed several veterinary surgeons (I'm not using caps here) during the last scrap. A few were all right, some of them fair to middling, a number decidedly short, and not a few who were "rank." They were not all heroes, and they were not out in search of the holy Grail, by any manner of means, but more interested in chasing the dollar of the country around the barbed wire fence of an unsanitary corral, while a practice of thousands of dollars a year at home went to the eternal bow-wows. He was one of them, in fact, the king bee of the bunch. In the classic language of Chimmey Fadden, he was a "corker," and could give aces and spades to Pasteurs, Davaines, and Kochs, and then beat them at their own game. Armed with an ordinary twenty-dollar microscope, accompanied with a gall immersion lens, and given plenty of room and a chance to catch his breath occasionally, he could raise more kinds of what used to be called hell before hades was discovered, inside the space of about two minutes, than any one or two men I have ever heard tell of. He was happy in his power, however.

I think it was George Eliot who said (or words to that effect) that the two things necessary to happiness are a good digestion and a large amount of gall, and, as he was far from being a dyspeptic, he certainly must be the happiest individual in this "vale of tears," as the church people put it.

While in the throes of an examination, some few moons since, to determine whether I was a "first-class vet," or but an ordinary horse doctor, glanders was reported to have shown itself in a certain troop of the regiment. He was sent out, and, like Cæsar, he came, he saw, and conquered. He jumped out of the chariot in which he arrived, injected a quantity of mallein, took the temperature immediately after, scraped some of the nasal discharge on to a slide, slipped it into a microscope he had with him, stood the apparatus on the fence, cast his eagle eye along the sights in the manner of Davy Crockett, or Leather Stocking, and awaited results. Of course, under conditions such as these, something must happen, or the cosmos go smash. He roared "glanders" to an awe-struck audience of troopers, and another life was sacrificed on the altar of science. The farrier and quartermaster-sergeant offered to dine off an uncooked portion of the muscle of the animal, just to prove there was no hard feeling, and at the same time expressed their opinion in this manner, that they did not believe in the glanders diagnosis. A good scheme if it was adopted among disputing practitioners, as it would get some of them off the earth, and they never would be missed, but as it was useless to stack up against science in the shape of a hypodermic syringe, a bottle of mallein, and a microscope, unknown quantities, by the way, in a cavalry regiment in this man's army, they didn't call his hand. The gall immersion attachment had the usually intelligent troop commander bluffed, so the unfortunate equus was immediately gathered to his fathers.

Now, to allay any doubt that might remain in the unscientific minds of the sergeant and farrier as to the correctness of the diagnosis, a portion of the nasal secretion from the prospective cadaver was secured, and a culture made on a piece of raw spud, and the information given that inside of ten days a beautiful colony of microbes would be on exhibition. The farrier, being a man of strong faith, put the now famous potato on a shelf in the saddler's shop and built a roost for the expected Mikes. He naturally expected Mikes to hatch out on an Irish potato. The culture turned out to be a "sisser," and the divil a microbe ever showed up to use the roost, and of course the spud was a dead loss to the troop mess. Some of the members of the organization expected the usual lecture and post-mortem demonstration in such cases, but he had no time to tarry for such foolishness, so he quietly "hit the trail," as we say in the West, and forgot all about the usual sanitary precautions, considered necessary in these cases, so anxious was he to conquer other fields, and other bacteria. 'Twas not until the Mikes failed to come home to roost that the idea commenced to percolate through the dandruff of the troop that they had been up against a gold brick game.

We met another worker in the veterinary Sahara. He had cultivated an oasis all his own; none of your nickel-plated affairs, but a regular rolled gold arrangement for stamping out glanders, warranted to do the business every time, or he didn't want a cent. He was drawing a salary from the Government when he should be gazing steadily at the business end of a mule for ten hours a day for six days of the week, in a cotton patch; he had a "bunch" of glandered horses in a field, isolated from the healthy ones by a four-wire barbed fence, and was just waiting until he had a good sized "bunch," when he would have a report made and put an end to the whole business p. d. q. The serious part of the affair, however, was that animals were being sent out daily from this corral for use. At another stamping out place the "boss man" told us in cold blood and while every one was perfectly sober and unexcited that he was at the end of his glanders scare, as the last case had been killed eleven days ago, and as nothing had shown up since he knew the disease was at the "end of it's string." He couldn't understand, several days later, when he found out there was still more string.

There was certainly a good field for missionary work among these apostles of science, but it is one of the misfortunes of war that the army at times becomes inoculated with a certain percentage of cranks, who believe that whatever is is wrong, and that they are specially raised up by Providence to put it right; they are "agin" any man from any school (?) but their own, and would be so were it personally administered by the Supreme Being. They are envious as eunuchs, and irresponsible as apes; they are all astride some ham-strung medicine hobby, and industriously riding it to the devil; every mother's son of 'em has a panacea for all the ills that horse flesh is heir to, and run the entire gamut from simple bitters to nerve tonics; their heads are full of windmills, with cow bell attachments, ever jangling out of tune; they have picked up a few technical phrases from lecturers evidently as ignorant as themselves, and these they reiterate with the stupid persistence of a poll parrot discoursing of crackers; they break into the army by some hook or crook, and succeed in making a laughing stock of good men and holding down the profession like a devil fish with his lunch hooks unlimbered.

This way of doing it cannot live forever; truth will at last rise triumphant. She is a long time getting her wings, but when they do spread may they be all powerful. While waiting we are inclined to say with John Boyle O'Reilly:

> "I am tired of the show and seeming
> Of that life that is half a lie.
> Of the faces filled with scheming
> In the ('fakes') that hurry by."

GERALD E. GRIFFIN, *Vet. 5th Cavalry, U. S. Army.*

AT the final examinations of the New York-American Veterinary College last month, eleven gentlemen were recommended to the Council of the University for graduation.

SUCCESS WITH THE SCHMIDT TREATMENT.

NASHVILLE, ILL., March 3, 1900.

Editors American Veterinary Review:

DEAR SIRS:—As there has been a great deal said *pro* and *con.* in regard to this mode of treatment for parturient fever, I will give my experience with it.

I have had quite a good opportunity to demonstrate the merits of it, and I find it the most reliable remedy that I have ever used. I have treated a good many cases this past year. I had four cases the last month—a fine Jersey the last day of February—and can proudly say that I have not lost a case since I adopted this treatment, and have had every patient upon her feet inside of six hours, excepting two, and they were the only ones I gave the second treatment to, and they were up and eating inside of twelve hours.

I give fluid extract of nux vomica in addition, and bathe the whole spinal column with a strong penetrating liniment, and keep dry and warm, and see that the bowels and kidneys are working properly. My patrons are astonished at the rapidity of the recoveries.

Let more of our brothers that are located in the country and dairy districts be heard from on this subject.

C. W. MCCRACKEN.

THE ETIOLOGY OF PARTURIENT APOPLEXY.

LINCOLN, NEB., March 23, 1900.

Editors American Veterinary Review:

DEAR SIRS:—I have another good specimen of brain taken from a cow dying from apoplexy. There was meningeal congestion, considerable œdema about the brain, a large clot under the medulla and anterior portion of the cord.

The case came into the hands of Dr. Tucker, who was called to see the animal early in the morning. He states that she died before he had an opportunity to give a dose of medicine.

The doctor called me to aid in making the post-mortem.

W. A. THOMAS, B. V. M.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

(*Continued from Vol. XXIII, Page 916.*)

Dr. A. T. Peters, of Nebraska, then addressed the meeting as follows:

"I thank you, Mr. President and gentlemen, for the kind invitation to speak to you on such a broad and interesting subject as that of meat inspection, and will, therefore, try to say a few words on this vast subject. There is probably no one more qualified to point out its virtues and its faults than this honorable body gathered here to-night; but if you will bear with me I will compare our system of meat inspection with that of Europe, and especially Germany, which I happen to know something about, and also state the rapid improvement that has been made in recent years in this country in this line.

"Meat inspection in this country has only a very recent history, but one that we can be proud of. In the older countries of Europe, meat inspection has been in vogue for a long time, but it is only in the last fifteen years that it has received a thorough reorganization all over the world. In reality it first took a steady boom in the old country when pathology became established on a more thorough basis, and with our increased knowledge of contagious and infectious diseases, it became more defined; for instance, the disease, tuberculosis, in years gone by was diagnosed as many different diseases, and it took many years to clearly demonstrate its infectiousness. Any one who is especially interested in meat inspection and especially in pathology would be surprised to read the history of tuberculosis and to see in what a state of affairs pathology was before this disease was thoroughly demonstrated. We owe this to Robert Koch, who demonstrated the infection beyond a doubt. But before Koch, it was our veterinary profession that pointed out very clearly the infectiousness of tuberculosis. It took a man with a great deal of courage and personality to defy the medical men of that age, and to draw attention to their mistaken methods of investigation. This man was Professor Gerlach, who is well known to all of us. He was the first one to draw attention to the fact that tuberculosis is a distinct infectious disease; and later, Dr. Robert Koch proved beyond the shadow of a doubt that tuberculosis is produced by a bacterium; and after thoroughly demonstrating this on many hundreds of animals it still took time for such men as Virchow to classify the many diseases which were confounded with tuberculosis; and during this time the rapid strides that were made in the perfection of the microscope and in the technique of bacteriology aided our profession to thoroughly become guardians of the public health.

"The inspection of meat is such a large subject and one of such great importance that any one who is connected with the performance of this duty may certainly be called a benefactor to the community. I will admit that it has not been established very long, but when we consider how short a period meat inspection has been in vogue in this country the success is gratifying ; for it is only a short time ago that positions which are now held by the most qualified men were in the hands of politicians, who were ridiculed by all scientific men. It is surprising to those who have observed the short space of time in which inspection of meat has outgrown the prejudice of the people,—for we can certainly say that since the civil service has been established these very important positions are held by the best men in the country ; and probably there is no branch of the veterinary profession which has made such rapid progress, and which has been so appreciated by the people as this one branch. It would certainly be interesting to many people to know how this large organization of men are systematically working and accomplishing so much good to the country, both from an economical and sanitary standpoint. I have omitted the statistical data, which can be found in the Yearbook of the U. S. Department of Agriculture for 1898, which exhibits interesting data on this subject. I can safely say, without any malice toward the European inspectors, that they are not as well organized, nor could they perform the vast amount of work that is being performed by our inspectors in this country. We read to-day a great deal about meat inspection and especially from European sources, but allow me to tell you that it must be admitted—and would be privately admitted by the best men in Europe—that our corps of inspection is as efficient, and our system of inspection as perfect, as any in the world. With the system that prevails in Europe we could never in this busy country of ours complete the examination of the hundreds of thousands of animals that are being inspected. We must certainly admit that they have some very prominent men in this branch of work : such men as Ostertag, Simmons, Long, Fischoeder, and ever so many others. In Europe each province, district and locality has supervision over its own inspectors, and the chief is not directly responsible for his subordinates. The entire corps of inspectors—no matter if they are engaged in an abattoir in the southern part of Germany or in the northern part of Prussia, are only responsible to their community and not responsible to the Federal government. For this reason they have special periodicals on municipal meat inspection which are wholly supported by inspectors of the different abattoirs, who contribute papers of various kinds. This is not the case in this country. The meat inspectors are responsible to the chiefs of the federal government, and for this reason they have not published as many scientific papers on the disease found on the floors of the abattoirs. These things probably could be remedied by a journal in the English language similar to that published by Professor Ostertag, giving short descriptions of some of the rare cases seen on the floors of the abattoirs : in this way keeping the interest of the inspectors alive. But I suppose this is not at all practical under the present system ; but some method should be adopted by the federal government of stimulating interest in writing up the rare cases found by the inspectors ; and I believe there is no better way than to have either a separate organ for this purpose or space in some of the journals that are now in existence exclusively for the use of meat inspectors, and in which the social feature as well as the professional may be represented.

"In conclusion, I may say that the most severe test that meat inspection has been put to was probably that during our late war with Spain, when the newspapers contained so many editorials on this subject. All that can be said is that it stood the test, and that those who were inclined to ridicule our methods of inspection must admit that it is as good as any country can produce ; and in closing I wish to say to those members who are engaged in this profession that with their zealous efforts it can be brought up to a standard that will be far superior to that of any other country."

At the conclusion of Dr. Peters' paper it was suggested that its discussion be postponed to a later meeting, but Dr. Peters demurring, Dr. Forbes led the discussion as follows :

Dr. Forbes : I must say that Dr. Peters has treated the subject in a manner far different from what I had anticipated. What he said in regard to the meat inspection service of this country is certainly very flattering, indeed, to that service. During the last five or six years I think that the system of inspection as carried on by the Bureau of Animal Industry has come to be an almost complete system, and will compare favorably with that of any other country in the world. A great deal has been said about the scientific manner in which meat inspection is carried on in Germany, but we learn from Dr. Peters' remarks to-night that our system will compare favorably with that in vogue in Germany. I fully believe that the efforts put forth by those in authority in regard to this inspection will ultimately result in a system complete and perfect in every detail, when the mark of the United States government will be a sufficient guarantee to any country in the world as to the purity and wholesomeness of its meat products.

Dr. Stewart: Permit me to say that Dr. Peters prepared this paper at my suggestion. I had received a communiation from the Secretary, Dr. Kelly, stating that there was rather a dearth of papers, and it occurred to me that we could possibly prevail upon Dr. Peters to attend our meeting and prepare a paper for this occasion. I suggested that the paper discuss the views of the people in general, and of those veterinarians who are not in the service, as to the value and quality of the inspection as conducted by the federal inspectors. That was my idea, rather than comparison with foreign inspection. I think it is beneficial to us " to see oursel's as ithers see us." I thought it would be more or less interesting to the members of the inspecting corps here to know how the people in Lincoln, where they have but a small abattoir and get most of their meat from South Omaha, look upon the subject of inspection. Dr. Peters travels over the State of Nebraska extensively, and is in touch with other parts of the country, and is certainly in position to learn the views of the people generally. However, I would say that he has prepared a paper which is probably more interesting than would be one prepared upon the basis I have indicated. It is gratifying to learn that our inspection bears so favorable a comparison with that of Germany. I am indebted to Dr. Peters for the information that the inspection in that country is not federal, but local. It would certainly seem that where it is under so many authorities it could scarcely be uniform throughout the empire of Germany. It may possibly be extra good in some points and very poor in others, and explains the blunders that have been made, especially in the microscopic work, where they have rural as well as municipal inspection. A layman, or man having been but partially instructed in the use of the microscope, is delegated to do rural inspection. His attention is called to the fact that a farmer wants to slaughter a hog and consume it for his own use, and gives a permit for him to do so. The farmer and his friends kill the animal and consume the meat sometimes before the inspection is completed. An outbreak of trichinosis occurs, an investigation is made, and it is found they have been eating pork that has not been inspected, or if so has been imperfectly inspected and passed. Relative to that side of the subject which I had in mind, I wish to allude to a circumstance which occurred in Kansas City perhaps a little more than a year ago. One of the abattoirs in that city was reported in the public press to the effect that the grand jury had found that one of its employees had endeavored to bribe some of the government inspectors to pass condemned meat and the publication of that article engendered a feeling among the consumers of meat in the surrounding country which made them averse to buying the products of that abattoir. Meats shipped out to towns in the surrounding country were returned with the statement that there was a feeling that that firm was desirous of, if it did not actually engage in shipping out meats that would not bear inspection. That was an indication of the feeling in the region about Kansas City in regard to inspection. Of course it needed something of that kind to bring out an expression of sentiment. The inspection certainly is growing in effectiveness, and since hearing this paper I feel much encouraged in regard to it. Dr. Peters has certainly looked upon it with a kindly eye, but I have no doubt whatever that he has drawn a fair comparison, and I believe the publication of that paper will impress our veterinary readers very much in favor of American inspection. Those who have given the matter little attention are ofttimes inclined to look upon the force as a lot of men with government jobs and that it is just a place for a lot of politicians to put their friends. I believe the publication of this paper in our periodicals might be extended to the lay press. For instance, if the veterinarians of this city would take such an article to their papers and request them to publish it as an extract from the VETERINARY REVIEW, or the *Journal*, whichever it may be published in, and the same method followed in other cities, it would in this manner secure an extensive publication. If in St. Joseph, it is deemed desirable to cultivate public sentiment along that line, a continual supply of just this sort of articles to your daily press will after a time bring forth substantial fruit in the way of inspection, and is one of the surest and best methods to reach that goal.

Dr. Peters: If I had been near Dr. Stewart at the time he suggested this paper I would have written it somewhat differently. I am very sorry I did not know just what he wanted, but I would beg leave now to say a few words to the subject he has suggested. I think the value of meat inspection in this country was never more clearly demonstrated than during the controversy over the meat supplied to the army during the late unpleasantness. I travel on an average over a thousand miles a month in the State of Nebraska, and if I was accosted once I was a dozen times during the time to which I have alluded, and I was pleased to see the people defend the federal government. They never believed the accusations which the press made against the federal inspectors. When in 1894 I took the position I now hold, it was a common thing to hear such a remark as "Oh, such and such an animal will pass all right." You don't hear any more of that. The people of the State of Nebraska, at least, have come to the conclusion that they are not going to be cheated, but, on the contrary, they are going to be protected. They were probably, as Dr. Stewart intimated, skeptical at the beginning, and insinuations were made as to the ease with which the inspectors might be bribed. True, an inspector may be bribed occasionally. We cannot help that; but the people have found that the federal government has a check on such things as that, and it can soon be located and rectified. I can assure any one who is connected with the meat inspection that he may be proud he is in the service. It is superfluous to say that many things might be suggested, which, if adopted would benefit the service; but it must be remembered that meat inspection has been in vogue in this country but a short time, comparatively, and when one has had an opportunity of personally comparing the efficiency of the systems in other countries with that of our own, I think the conclusion that we have a superior system unavoidable. You gentlemen here read the extracts from Ostertag and other authorities, and you read the comments in our journals; but there are hundreds of men, in the southern part of Germany especially, who have never graduated, but who are appointed, and who supervise the killing of animals, and inspect the meat, and in Ostertag's book you will notice that a great many times it says an animal had to be killed, say in a case of choke. The layman quacks will say it is liable to die, and they will kill it and that meat is used for food, and so with very many other diseases.

Dr. Moore: Dr. Peters' remarks suggest a thought upon which I would like to ask for information. It is a common thing in this country to run across German practitioners, who claim to have been practitioners under the German government, whom we know from their work and from what we can see and learn of them, are not qualified men, and I would like to ask if it is a fact that the German government does employ such men.

Dr. Peters: They are employed as inspectors, but not by the government. Take the state of Wittenberg for example. Parties in that state occupying public positions similar to county commissioners here, appoint Mr. So-and-so an inspector, and he may inspect for trichinæ only. In Prussia it is necessary to receive instruction for twelve weeks (I think that is the period) at an abbatoir and an examination passed, before they are allowed to practice inspection, but he is supposed to call in a veterinarian whenever he thinks that it is a contagious disease, but these people, in a great many instances, think they know more than the veterinarians (usually quacks do), and take upon themselves too much responsibility. In the German army and other government positions, they are absolutely qualified men.

Dr. Moore: Another question: Dr. Peters states that it is the common practice of the empiric when he is called and finds a case of choke, for instance, which he thinks is going to prove fatal, and in which he advises the destruction of the animal and its use as food. I would like to know if in such a case any inspection is made by other authorities.

Dr. Peters: Not if he is present before the animal is killed.

Dr. Stewart: I find in Zuill's Friedberger & Fröhner's book a statement relative to diseases of food animals, that in many of the diseased conditions which are likely to destroy life, which are not amenable to treatment, they recommend the destruction of the animal and the use of the carcass for food purposes. For instance, if a cow was suffering from paresis, milk fever, or was paralyzed, we may say moribund—would recommend that it be killed, dressed and used for food. If a cow were suffering from traumatic pericarditis, in which the pericardial inflammation was of a purulent character, yet the animal was not quite dead, perhaps about to die, certainly could not be relieved by treatment—recommend that the animal be slaughtered and the flesh used for food. And so in many other cases in which, in this country, the flesh would be condemned as unfit for food. Viewed from this standpoint American inspection is certainly much superior to German or French inspection. Animals are so abundant in this country, and the price of flesh so low, comparatively, that public sentiment demands its absolute freedom from disease, and would, I believe, often transcend the zeal of the inspector, and reject what he passes, because their sentiment is not always founded upon knowledge. I do not know to what extent inspectors generally are governed or influenced by sentiment, but I know that with some it is a potent factor. If they would not like to eat the meat themselves they would not like anybody else to eat it. Under the circumstance of the cheapness and abundance of meat in this country, it seems to me that such a sentiment should be given some play.

Dr. Forbes : I do not know anything about the system of meat inspection in Germany, but I have had a little experience with it as it is carried on in the city of Glasgow, Scotland, and know of my own personal knowledge that it is quite a common thing for veterinary surgeons when called in cases of parturition not amenable to treatment, immediately upon arriving at this conclusion they advised the owner to slaughter it and send it into the city for food. The inspector there is a policeman, who acts under the medical health officer, and not one-fourth of them know a diseased condition when they see it. In a case of parturition my employer and myself, after working several hours in a futile endeavor to relieve the cow, decided that we could do nothing further for her. She was on the point of collapse. The owner was so informed, and he decided to kill the animal, which was done, the carcass transported to the city and there placed on the market. So that the more we learn of others the more reason we have to be satisfied with American inspection.

Dr. Goode : Dr. Stewart's remarks remind me of one or two cases that came under my own observation in the city of Chattanooga, Tenn. In one case a very fat steer was brought in suffering with what afterwards proved to be actinomycosis. The matter was noised about in some way, and the captain of police was there and a crowd had congregated around, and the stockyards men telephoned to me to come down and see it. Before I got there the animal had been killed, but not bled. It was thrown away at a loss of fifty dollars. They said that even if it was all right they were opposed to using it for fear something would be said about it and it would damage their business. I said, " you could afford to use it on my say so, couldn't you ? " They said no, they did not care to risk it. In another case, I was called to treat a cow in a case of chronic prolapsus of the rectum. One night it came out and we could not get it back. The cow was two months after calving and was fat, and I advised the owner to slaughter her for beef, but he said he didn't want to do it. I placed an ecraseur around the mass and cut it off and the cow died from the shock, and he lost the value of the cow. These are two cases I know of where the owner incurred a loss just from fear of public opinion.

Dr. Moore : I think we ought to move a vote of thanks to the people of that community.

Dr. Goode : The general impression seemed to be that if they had an inspector it would cause them all kinds of unnecessary laws. They were afraid of it, and if anyone is working up that kind of thing I think it would be a good idea in some cases at least if they would pass animals that they would expect to have debarred. JOHN B. WRIGHT, *Secretary.*

THE WISCONSIN SOCIETY OF VETERINARY GRADUATES.

The semi-annual meeting was held at the Kirby House, Milwaukee, September 13, 1899. The meeting was called to order by the President, Dr. Roberts, at 2 P. M. in the parlors of the Kirby House. Present : Drs. H. Arpke, W. G. Clark, C, Evans, E. R. Flack, C. H. Ormond, R. Kuoni, G. Ed. Leech, E. L. Morgenroth, E. H. Newton, J. F. Roub, D. Roberts, S. S. Snyder and L. A. Wright. Visitors : G. W. Butler, Milwaukee ; E. A. Manual, Des Plaines, Ill.; A. R. Wake, Cudahy ; Jos. Pfieffer, Sheboygan ; W. E. A. Wyman, Milwaukee ; Wm. Voss, Kiel ; H. F. Eckert, Markesan ; P. J. Wilkinson, Oconomowoc ; S. J. Collins, Reedsburg, and E. A. McCullough, Delevan.

The minutes of the last meeting were read and approved.

The following applications for membership were received : Drs. W. E. A. Wyman, Wm. Voss, H. F. Eckert, P. J. Wilkinson and S. J. Collins. In the absence of the censors, the President appointed as a committee to examine the applications Drs. Roub, Clark and Ormond. A recess was taken until the committee reported on the applications. After the meeting was called to order the committee reported favorably on the applications. On motion the candidates were voted in by acclamation. The vote was taken and the several gentlemen were declared elected members of the society.

Dr. Leech reported on behalf of the Committee on Legislation in regard to the law passed at the last session of the legislature. The question of prosecutions of non-graduates under the new law was discussed by Drs. Leech, Roub, Ormond, Flack, Wright and Roberts.

Dr. Hartwig, not being present, his paper on "Parturient Apoplexy"* was read by the Secretary. Discussed by Drs.

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* Will be published in an early number.

Wright, Roub, Wyman, Clark, Flack, Arpke, Collins, Morgenroth, Kuoni and Snyder.

On motion the society adjourned to meet at 8 P. M.

Evening Session.—The meeting was called to order by the President at 8 P. M. In addition to those present at the afternoon session, were B. A. I. Inspectors Drs. A. E. Behnke, H. Caldwell, W. J. Stewart and R. H. Harrison. Several of the leading horseshoers of the city were also present.

The meeting was opened under the head of applications for membership, and the application of Dr. E. A. McCullough was received, which being reported on favorably by the censors, it was balloted on and Dr. McCullough was declared elected to membership.

Dr. L. A. Wright read a very able paper on the "Workings of Heredity." Discussed by Drs. Roub, Schmitt, Leech, Flack, Wyman and Butler. On motion the discussion was closed and the essayist excused.

Dr. E. L. Morgenroth gave a short talk on shoeing and exhibited several shoes. Discussed by Drs. Arpke, Schmitt, Roub, Wright and Leech, also by Messrs. Widemeyer and Dorman, who gave us some very good ideas in regard to shoeing.

On motion the discussion was closed and the essayist excused. On motion the society adjourned to meet in Madison subject to the call of the President and Secretary.

Thursday morning at 8.30 the society met at Dr. W. E. A. Wyman's hospital. Dr. J. F. Roub performed a skillful and successful operation on a ridgling and explained his method of operating. Dr. Wyman performed cunean tenectomy for bone spavin.

The annual meeting of the Society of Veterinary Graduates was held in Madison, March 14th, at the Hotel Van Etta, and was called to order by the President, Dr. D. Roberts, at two o'clock P. M. Present: Drs. B. L. Clark, W. G. Clark, A. H. Hartwig, R. S. Heer, S. S. Snyder, G. Ed Leech, D. Roberts, E. D. Roberts and Chas. Schmitt. Visitors: Drs. Simon Beattie, Madison; and Walter Pick, Lodi.

The minutes of the last meeting were read and approved, and the Secretary's report of accounts was read and accepted. The Treasurer's report was read and accepted.

Dr. Hartwig brought up the subject of prosecutions under the new law, which was discussed by Drs. Leech, Heer and Schmitt.

Under the head of new business a communication from Dr.

W. E. A. Wyman tendering his resignation from the society was read and discussed by Drs. Leech, Schmitt, Clark, Snyder and Hartwig. On motion, Dr. Wyman's resignation was accepted.

On motion, the Secretary was instructed to retain Dr. Wyman's certificate of membership and return his membership fee. It was moved by Dr. Leech and seconded by Dr. Hartwig that the President and Secretary be empowered as a committee to restrict Dr. Wyman from using the society or the society's interests in any way to further his personal interests, and that the President and Secretary be given the power of attorney to prosecute the case if necessary. Carried.

The applications of Dr. S. Beattie and W. R. Pick, being reported on favorably by the censors, were ballotted on and declared elected to membership.

The Secretary was requested to read Section VII of the Code of Ethics in regard to live stock insurance companies. The Secretary then read a report of the financial condition of the Badger Mutual Live Stock Insurance Co., of Milwaukee. Discussed by Drs. Leech, Hartwig, Clark and Schmitt. Moved by Dr. Leech, and seconded by Dr. Heer, that the Secretary forward to all members of the society not present a marked copy of the Constitution and By-laws.

On motion, the society proceeded to the election of officers. Moved and seconded that the election be by *viva voce* vote. Carried.

The election resulted as follows :—

President—A. H. Hartwig, Watertown.
Vice-President—J. F. Roub, Monroe.
Secretary—W. G. Clark, Marinette.
Treasurer—S. S. Snyder, Cedarburg.
Censors—H. P. Clute, Marinette ; R. S. Heer, Platteville ; B. L. Clark, Monticello.

On motion it was decided to hold the semi-annual meeting at Milwaukee in the month of September.

On motion, Drs. Ormond, Leech and D. Roberts were appointed a committee to make arrangements for the semi-annual meeting.

On motion, the society adjourned to meet at eight o'clock.

Evening Session.—Meeting called to order at 8.30 by the President, Dr. A. H. Hartwig.

The first subject on the programme was a paper on "Periodic Ophthalmia," * by Dr. G. Ed. Leech, Milwaukee. It was carefully prepared and presented the latest researches in both human and veterinary pathology in regard to this disease. Discussed by Drs. E. D. Roberts, Hartwig, Schmitt and D. Roberts.

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* Will be published in an early issue.

On motion, the discussion was closed and a vote of thanks tendered the essayist.

In the absence of Dr. Wyman, his paper on "Meso and Double Peroneal Neurectomy" was read by the Secretary. In the absence of Dr. Wyman the paper was not discussed.

Drs. Leech, Heer, and E. D. Roberts discussed "neurectomy."

The use of eserine sulphate, barium chloride, etc., were quite fully discussed. Dr. Leech recommended oil of eucalyptus in drachm doses hypodermically or orally for intestinal flatulence.

The use of potassium iodide in the treatment of azoturia was discussed by Dr. D. Roberts, who reported favorable results when combined with sodium bicarbonate. Drs. Leech, Heer and Hartwig reported unfavorable results from the treatment.

On motion, the society adjourned to meet at Dr. Beattie's hospital for clinics at 8.30 the next morning.

Clinics.—Dr. Beattie presented a case that had shown difficulty in respiration, gradually increasing for a year or more. On examination the horse was found to have suffered a fracture of the nasal bone. This case was not operated on as the weather was very cold.

Dr. D. Roberts performed ovariotomy on a bitch, and did the operation very quickly and neatly.

Dr. H. P. Clute gave a demonstration in veterinary dentistry, after which the society adjourned to meet in Milwaukee next September.

W. G. CLARK, M. D. C., *Secretary.*

GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

The January meeting was held at the Hotel Livingston, Rochester, N. Y., Jan. 25th, 1900.

Vice-President W. G. Dodds in the chair. The following responded to roll-call: T. S. Rich, D. B. French, E. Knight, L. R. Webber, A. G. Tegg, W. G. Dodds, J. H. Taylor, A. Y. Earl, N. N. Lefler, J. C. McKenzie, L. J. Palmer, A. McConnell, P. J. Johnson, G. C. Kesler, D. P. Webster, Wm. Hunter, W. E. Stocking and W. J. Payne.

Reports of officers showed association to be in a flourishing condition.

Dr. J. E. Smith, of Webster, N. Y., was elected to membership.

The following ten members were elected on the Board of Directors and also as officers for the ensuing year: President, W. G. Dodds; Vice-President, T. S. Rich; Secretary, E. Knight; Treasurer, L. R. Webber. Board of Censors—D. B. French, G. C. Kesler, L. J. Palmer, W. E. Stocking, A. G. Tegg and A. McConnell.

Suitable resolutions were drafted on the death of our late President, Dr. Albert Drinkwater.

The importation of tuberculous cattle into the State was discussed, which resulted in the framing of the following resolutions:

WHEREAS, Tuberculosis has and is increasing to an alarming extent among cattle in Western New York, thus causing extensive loss of cattle, and endangering the public health, and as most of these cases are in cattle imported from adjoining states or traceable to infection from such cases, be it

Resolved: That we, the members of the Genesee Valley Veterinary Medical Association, urgently call for the enactment of such laws as will give us protection, and prevent this state from being made the dumping ground for diseased animals that cannot be sold in adjoining states where they have laws preventing the importation of such diseased animals.

And that we urge each member of this Association to call upon his representative in Assembly and Senate to urge the passage of such laws.

The Secretary was instructed to have printed copies of the above resolutions forwarded to each member, that he in turn may send them to his State Assemblyman and Senator with an accompanying letter asking for their aid and support in procuring the necessary and proper legislation.

The following gentlemen read papers: Dr. A. Y. Earl, of Palmyra, "Soft Cancer in the Cow"; Dr. A. G. Tegg, "Inflammation"; Dr. L. R. Webber, "Purpura"; Dr. A. McConnell, of Brockport, "Hog Cholera"; Dr. N. N. Lefler, "Osteo-Sarcoma on Jaw of Horse."

The following were appointed by the President to prepare and read papers at the July, 1900, meeting: Drs. Rich, Lefler, Johnson, A. Tegg, Webster and McKenzie, in conjunction with those failing to prepare papers for this meeting.

After holding a clinic at the stable of one of the city members, the meeting adjourned.

EMIL KNIGHT, V. M. D., *Secretary.*

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

Meeting called to order, October 20th, 1899, by Secretary Nolan. Mr. Bender was appointed Secretary *pro tem.* Mr. Young was appointed critic. It was carried to dispense with the regular order of business and to proceed with the proposal and election of new members, as follows: Messrs. Weitzel, Burrows, Bigelow, McClintock, Nicholas, Zollinger, Rothermel, Cole, Glass, Paget, Feigenbaum and McCloskey. The election of officers resulted as follows: President, Mr. Nolan, '00; Vice-President, Mr. Young, '00; Secretary, Mr. Bender, '01; Treasurer, Mr. Davison, '00; Librarian, Mr. Hayman, '01. Executive Committee.—Mr. Powell, '00; Mr. Carlisle, '01; Mr. Shore, '01; Mr. McCloskey, '02. The critic had no report to make. Adjourned at 9.30 P. M.

Meeting was called to order Nov. 3, at 8 P. M. Mr. Horner was appointed critic. Carried, that the names of persons no longer in attendance at this school, and whose names are still on our roll, be stricken off the roll. Dr. Adams then addressed the meeting on "The Method of Fitting Bits in a Horse's Mouth." Dr. Adams made his lecture very interesting by the way in which he described the various forms of bits and the positions they should occupy in the mouth. A vote of thanks was extended to Dr. Adams. The critic had no report to make. Adjourned at 9.15 P. M.

Meeting called to order Nov. 17, at 8 P. M. Mr. Mayer was appointed critic. The chair appointed the following members to serve as the Room Committee: Messrs. Hughes, '01, Bassler, '01, and Paget, '02.

Carried, that the librarian be authorized to determine cost of having 100 copies of the Constitution and By-Laws of the Society printed.

Mr. Cornman then read a paper entitled "Ectopia Cordis," which was very interesting. He also had on hand a specimen which showed it very nicely. A vote of thanks was extended to Mr. Cornman. Critic had no report to make. Adjourned at 9.15 P. M.

Meeting called to order Nov. 24, at 8 o'clock P. M. Mr. Tallman was appointed critic. Carried, to dispense with the regular order of business.

Mr. Young then read an excellently prepared paper on "Irregularities of the Dental Apparatus."

Dr. Pearson then addressed us on "Horse Breeding." He gave an elegant address, and showed us photographs of the various breeds of horses of which he spoke.

A vote of thanks was extended to Dr. Pearson and also to Mr. Young.

The chair appointed the following committee on banquet: Messrs. Cornman, Carlisle and McCloskey.

The Treasurer's report stated the financial condition of the society was very encouraging.

The critic's report was very favorable. Adjourned at 9.30 P. M.

Meeting called to order Dec 8, at 7.15 P. M. Mr. Cornman was appointed critic. Carried, to renew our subscription for the *Pennsylvanian.*

The librarian was authorized to look into the matter of having the papers brought into the reading room, and also to report what was being done in regard to printing the By-Laws. The supper committee reported that they had selected the Hotel Aberdeen for the banquet. Carried, that the banquet be held December 16th, at 9 o'clock P. M.

It was also carried, that the Secretary invite by letter the three clinical professors and also the resident surgeon.

Mr. Van Sant was elected to membership. The critic's report was favorable. Adjourned at 8.30 P. M.

The third annual banquet of the Society was held on the evening of December 16th, at the Hotel Aberdeen. There was a large attendance and the evening was very pleasantly spent; at a seasonable hour an elegant supper was spread, which was greatly enjoyed by all.

The affair was voted by all present to be a great success.

HARRY E. BENDER, *Secretary.*

THE VETERINARY ASSOCIATION OF MANITOBA.

The annual meeting of this association was held in the city of Winnipeg, February 20th, the President, Dr. H. D. Smith, in the chair. A large and representative gathering of members from all parts of the province made this one of the best meetings the association has ever held. The auditors reported the financial affairs in first rate condition, and the Secretary showed that the membership now amounted to sixty-eight, the largest in the history of the organization.

Several interesting papers were read. Mr. W. Swenerton, of Carberry, reported a case of equine tuberculosis, which presented many interesting features. In the discussion which followed, Dr. Martin stated the facts relating to a similar case in his own practice, where the evidence of infection from tuberculous cows was very strong, the horse in question belonging to a dairyman, who stabled the animal with his cows.

Mr. J. A. Stevenson then read a most interesting essay on "Hog Cholera," a disease which is fortunately almost unknown in this province. The last outbreak was about the year 1884, and up till the present the province was free from it. Owing to stringent measures now in force, the present outbreak was confined to a few farms in the vicinity of Carman, and he had every reason to think it would be successfully stamped out.

This was followed by an essay on "Tuberculosis," by Mr. W. H. Lake, of Miami, which in the absence of the essayist, was read by the Secretary.

A motion of condolence upon the death of our late Vice-President, J. Spiers, of Virden, was passed, and the Secretary instructed to forward a copy to Mrs. Spiers.

The following gentlemen were elected officers for the ensuing year: President, J. G. Rutherford, M. P., of Portage la Prairie; Vice-President, J. F. Fisher, V. S., Brandon; Secretary-Treasurer and Registrar, F. Torrance, D. V. S., Winnipeg. Councillors: W. A. Dunbar, V. S., W. R. Taylor, V. S., W. E. Martin, V. S., and A. E. Williamson, V. S. The examiners are Messrs. Dunbar, Martin and Torrance.

F. TORRANCE, D. V. S., *Secretary.*

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular annual meeting was held at Hotel North Augusta, Wednesday, Jan. 10th, at 7.30 P. M.

A small number of members were present. The minutes of the previous meeting were read and accepted.

Dr. A. Joly, for the committee on clinics, reported that all the cases operated on at the meeting in October were successful except one case of spavin, which was cauterized.

Election of officers resulted as follows:—Dr. A. Joly, Waterville, President; Dr. C. L. Blakely, Augusta, Vice-President; Dr. I. L. Salley was reëlected Secretary, but declined to serve, and Dr. F. E. Freeman, of Rockland, was elected. Dr. I. L. Salley was elected Treasurer. Drs. Russel, Murch and Cleaves were appointed Executive Committee.

Dr. Blakely reported a case of angioleucitis. Dr. Salley reported a case of purpura hæmorrhagica, followed by trismus, to that extent that the patient was unable to eat much but slops, and is in this condition at the present time. Considerable discussion followed the report of these cases.

Drs. Russel and Murch were appointed to read papers at the next meeting.

Voted to adjourn to meet at Bangor in April.

I. L. SALLEY, *Secretary.*

NEWS AND ITEMS.

WILLIAM DUGUID, F.R.C.V.S., a former professor and vice-president of the Royal Coll. of Veterinary Surgeons, died Jan. 16.

DR. J. S. MCCLURE, of Oxford, Pa., has received the appointment of Assistant State Veterinarian of Montana.

A FEW DROPS OF CAMPHOR in water used as an enema will promptly evacuate the bowels.

TINCTURE OF IODINE applied daily for three days, has caused the disappearance of hemorrhoids.

VETERINARIAN JAMES A. MARSHALL, of Philadelphia, has been elected Vice-President of the Turf Club.

DR. R. C. MOORE served as official veterinarian for the annual bench show held by the Kansas City Kennel Club, March 14 to 17.

DR. G. W. POPE, of Boston, has been placed in charge of the Garfield Station, New Jersey, to succeed Dr. W. B. E. Miller, transferred to Philadelphia.

THE automobile does not find Kansas City an inviting field of usefulness. As yet but two have climbed its hills to excite the curiosity of the public. Their appearance was transitory.

DR. WM. FOLSETTER, of Dallas, Texas, and Dr. W. A. Knight, of Houston, Texas, took a postgraduate course at the Kansas City Veterinary College during January and February.

THE KANSAS CITY DOG SHOW, held the middle of last month, was a great success, both in number and quality of entries and in attendance.

DR. WILLIAM A. RUSHWORTH, of the B. A. I. force at Buffalo, N. Y., has resigned his position to accept the assistant managership of the Pasteur Vaccine Co., at Chicago, Ill.

DR. A. F. MARTINS, recently microscopist of the B. A. I. force of Boston, has been ordered to Buffalo, N. Y., for similar duties, vice Chas. Bullard, who has accepted the position of assistant botanist at Harvard College.

Dr. Will. H. Derr (Ont., '93), of Mansfield, O., was recently united in marriage to Miss Elizabeth Tulloss of that city. Dr. and Mrs. Derr will be at home to their friends on E. Fourth St., after April 1st.

W. R. Fleming, D. V. S., recently of Troy, N. Y., has been appointed upon the meat inspection force of the B. A. I., and assigned to duty at Omaha, Neb.

Dr. Spaak, of Brussels, has obtained excellent hemostatic results from a mixture of two parts chloroform with one hundred parts of water. This mixture is said to rapidly arrest bleeding after tooth extraction.

Maud S., ex-queen of the American trotting turf, died of heart trouble on March 16. A veterinarian called to see her three days prior diagnosed the condition, and had it confirmed by sudden collapse, though we have not heard the result of the autopsy.

The Kansas Live Stock Sanitary Board now requires that all cattle shipped into Kansas for breeding purposes be accompanied by certificates of health. The certificates must show freedom from tuberculosis, demonstrated by the tuberculin test.

James Fraser, M. R. C. V. S., a native of Canada, has been elected President of the Royal College of Veterinary Surgeons of England. He was born in Canada, began his professional education at Montreal and completed them in Edinburgh. He is the first colonist to achieve that high honor.

The Carabao, or water-buffalo, is being used now by the United States army in the Philippines. It is a very powerful but slow animal, but is of good use during the rainy season. Our soldiers have named the carabao "amphibia" from its persistency in taking a bath when crossing a river, and this without regard to the occupant of the cart it draws.

Flying Fox, the unbeaten English thorougbred, brought $188,000 at auction in February, being purchased by a son of the founder of Monte Carlo, M. Blanc. This beats all previous records for price, the former figure being $150,000 for Ormonde, who was bought by Macdonough, of California. Ormonde is grandsire to Flying Fox.

Kansas City Meat Inspection.—The following named veterinarians are employees in the Federal Meat Inspection Service at Kansas City: S. E. Bennett, H. B. Adair, J. S. Buckley, T. W. Carnahan, H. B. Chaney, W. R. Cooper, C. H. Davies, H. H. George, J. S. Groves, D. C. Hanawalt, Raymond Johnson, B. F. Kaupp, P. I. Kershner, R. G. Lawton, Albert Long,

F. C. McCurdy, Louis Metsker, M. B. Miller, W. N. Neill, J. L. Otterman, S. Stewart, A. W. Swedberg.

CORRECTION.—A. W. Baker, V. S., Brasher Falls, N. Y., writes under date of March 23: "Kindly state in REVIEW that a misprint occurred in my article in the March number in reference to 'modes of firing.' The length of the prongs on the budding iron should have been 1½ inches instead of $\frac{5}{16}$, as it would be impossible to fire with such short prongs without burning the skin by the necessarily hot plate."

INTERFERING OVERCOME BY RUBBER PADS.—John D. Fitzgerald, of Chicago, a successful horseshoer, writes to the *Horseshoers' Journal* that he has observed that all interfering horses, especially ankle and shin knockers, can be cured at once by the use of rubber pads. He says: "I have shod hundreds of carriage and business horses for interfering in front and behind, and I have found the rubber pad to stop them all, and I believe the rubber pad will stop all interfering in front and behind unless in exceptional cases of speed horses, when the weight of the pad will make the difference."

THE heavy harness horse lost a wonderfully successful champion when Charles F. (Fatty) Bates died in New York the 1st of March. He was possibly the most unique character in the country, and it will be a long time before his place will be filled. Of wealthy parents, who indulged his fondness for horses in early life, he became a professional driver and dealer, being in close touch with the swell set, and he did a great deal to popularize the high-stepping horse among the wealthy residents of Gotham, and he led them a merry pace, for his horses were the best, as were his carriages, harnesses and other appointments that could be obtained. He was only thirty-three years old at the time of his death, and weighed nearly 300 pounds, his demise being due to acute pneumonia.

EVERY STATE BOARD OF HEALTH SHOULD HAVE A VETERINARY DEPARTMENT.—The Minnesota Agricultural Society, at its recent meeting, passed resolutions indorsing the work of the Veterinary Department of the Minnesota State Board of Health (Dr. M. H. Reynolds, Director) as follows: "Whereas, our live stock interests are continually threatened with visitations of infectious diseases, and Whereas, we recognize the great importance of sanitation in connection with our live stock interests; therefore be it Resolved, that the State Agricultural Society recognize in this public way the great importance of the work already accomplished by the Veterinary Department of the State Board of Health; and Resolved, that we approve of the present organization and methods of the State Board of Health for dealing with infectious diseases of domestic animals."

NEW YORK HERDS FILLING WITH TUBERCULOUS IMPORTATIONS.—The Genesee Valley Veterinary Medical Associaton at its January meeting adopted resolutions calling upon the New York Legislature to enact laws prohibiting the importation into the State of tuberculous cattle, claiming that the disease is rapidly increasing in Western New York, as such diseased animals, prohibited from being disposed of in adjoining States on account of stringent laws, are brought into New York in large quantities. There seems to be no question but that our cattle interests are suffering in consequence of this laxity in the State laws, and now that the Agricultural Department is about to supersede the figure-head Tuberculosis Commission, such agitation on the part of veterinary organizations is apt to strike a responsive chord, and some steps be taken to stay the progress of such contaminating influences.

A HIGH TRIBUTE.—The *Veterinary Journal* (London), which can see but little in America worthy of commendation from a veterinary standpoint, devotes more than a page to reviewing the report of the proceedings of the 1899 meeting of the American Veterinary Medical Association, and wonders why English veterinary societies have never published their minutes in book form. It condescends to admit that "by means of these proceedings we are enabled to form a fairly accurate conception of the tendency to scientific methods which is obtaining among American practitioners." It concludes: "We repeat, that in these proceedings we have the means of gauging the march of progress in America, and it is a pity that no British society provides us with a similar compilation." We can tell our esteemed contemporary that there are many things in the veterinary profession in this country which our cousins would do well to emulate.

HAPPY RESULT FROM OVARIOTOMY.—At the clinic of the American Veterinary Medical Association last September, Prof. W. L. Williams operated upon a thoroughbred filly supplied by Dr. William Sheppard, of Sheepshead Bay, he giving the history that she was possessed of great speed but absolutely refused to run, and was vicious, balky and intractable. The doctor performed the operation of ovariotomy through the vagina very cleverly, and we promised our readers that we would acquaint them of the result. In the New York *Morning Telegraph* of March 27 we find the summaries of the racing on the day previous at Little Rock, Ark., and in the third race, for three-year-olds, Cheesestraw II. came in fourth, beating four others, the distance being six furlongs, and the time 1.17. Dr. Sheppard writes that he will follow up her performances, and will again inform us as to her conduct. [Since the above was in type Dr. Sheppard sends another copy of the same paper, giving the result of the races of March 29, and in the third race we find that Cheesestraw II. won, beating five horses, finishing under the whip in the same time as the previous performance.]

CÆSARIAN SECTION.—Mr. James Laithwood, M. R. C. V. S., in the *Jour. Comp. Pathol. and Therapeutics*, records the case of a half-bred Russian poodle which was in a state of collapse from dystokia, having been in labor all of the previous day. Only the ribs of a pup could by felt by vaginal examination. Cæsarian section was decided upon. The hair was shaved from the flank, the skin disinfected, and an incision made through the skin in an oblique direction towards the hip, the muscular fibres being separated, and the uterus withdrawn. It being incised, five pups were removed, four of which were alive, the fifth being dead and twice the normal size, the sole cause of the mischief. The wound was sutured with carbolized catgut and a bandage applied over it. The bitch recovered.

MAKING AN ARTIFICIAL PREPUTIAL OPENING.—Mr. B. Godfray, M. R. C. V. S., in *The Veterinarian*, describes the case of a twelve-months-old fox terrier dog, which had a congenital deformity of the prepuce, there existing but a small hole in the prepuce, through which urine escaped in drops. After injecting 10 minims of a 10% solution of cocaine, a longitudinal incision was made in the median line, guided by a grooved director, extending half an inch. Two other incisions were then made at obtuse angles to the first, cut in the form of a Y. The tissue between the forks of the Y were removed and the penis brought into view. It was then easily protruded, and the edges of the wound kept apart, recovery being complete.

VETERINARY AMBULANCE CORPS IN FUTURE WARS.—The British Humane Society, London, has suggested to the War Department to provide for a Veterinary Ambulance Corps in South Africa, in order to remove promptly horses which are severely wounded and shoot those beyond hope of recovery. The War Department in reply has stated that such an ambulance corps would not come under the rules of the Geneva Convention, and that, therefore, for the proper protection of such corps international agreements should first be reached. *The Veterinary Record* enlarges on this question, citing also the case of Veterinary Lieutenant Shore, who was taken a prisoner by the Boers against his remonstrations as being a veterinary surgeon and a noncombatant. We thus see that the English army veterinarian, otherwise properly recognized, still occupies an anomalous position in war. No doubt, the case of Lieutenant Shore will be taken up by veterinarians of other armies and brought before the next International Veterinary Congress for consideration and action.—(O. S.)

THE CONTROL OF TUBERCULOSIS IN NEW YORK STATE.—Chairman Daniel P. Witter, of the special committee of the New York Assembly appointed to take testimony and report on the question of the control of tuberculosis, has made the following recommendations for a bill: (1) That the present tuberculosis committee be abolished and that the work of the protection of the herds of this State from the infection of tuberculosis and the examination and destruction of glandered horses be placed with the Commissioner of Agriculture. (2) That the Commissioner of Agriculture will appoint a farmer well acquainted with the value of cattle, who shall be known as the State appraiser of condemned cattle, whose duty it shall be to accompany and assist the veterinarian in making examinations of suspected herds and appraise those condemned. (3) That the State can only force the condemnation, quarantine and slaughter of such animals as are found to have tuberculosis by physical examination. But if a dairyman elects to have his herd treated with tuberculin, and will enter into an agreement with the State before such examination shall be made, that he will disinfect his premises, and either slaughter or hold in strict quarantine all of the reacting animals and their products, that the State will assist him in his efforts to entirely rid his herd of the disease. (4) That the appraisal of condemned animals shall be made at the time or immediately following the examination. (5) That the State shall pay the owner of all cattle slaughtered, under the provisions of this act, known to have been owned in this State at least one year, one-half of the appraised value for all cattle found to have tuberculosis, and full appraised value for all cattle found to be non-tuberculous upon post-mortem examination. (6) The owner of condemned cattle shall be paid by the State Treasurer out of any money appropriated for that purpose, the amount of the certificate for indemnity as approved by the State Appraiser, the Commissioner of Agriculture and the State Controller. (7) That no cattle shall be examined and condemned under this act after the money appropriated for the indemnifying of owners of such cattle shall have been exhausted, until another appropriation shall have been made.

WHAT REVIEW SUBSCRIBERS SAY.

—Allow me to compliment you for having the moral courage to take this course, as it is the only business like manner to run a subscription list.—*Wm. R. Howe*, *V. S.*, *New York City.*

—Enclosed please find $3 for the REVIEW for another year; must have it; cannot afford to be without it. Wishing the REVIEW a long and prosperous life, I am as ever.—*A. D. Galbraith*, *D. V. S.*, *Greensburg*, *Indiana.*

—Although I have been out of the profession for six years, I enclose my subscription, as I like to know all that is going on in the veterinary world.—*E. H. Humphrey*, *Agent U. S. Ex. Co.*, *Cortland*, *N. Y.*

—All I ask is that you let me know if you find my account out of balance on your books. I look longingly for my REVIEW after the first of each month, and would be lost without it.—*T. S. Childs*, *V. S.*, *Saratoga Springs*, *N. Y.*

—I am in full sympathy with the position you have taken in the March editorial in regard to delinquents. Make them pay or cut off their supply. What is the use of carrying such people?—*Wm. Herbert Lowe*, *D. V. S.*, *Paterson*, *N. J.*

—Enclosed find check for $3 to renew my subscription for the REVIEW, a paper that I could not think of having stopped. I think you have taken a very wise course in placing the journal on a cash basis. I trust you will lose no subscriptions, but if you do lose a few it will leave you with a good substantial list of true lovers of the profession. . . . .—*J. H. Conover*, *D. V. S.*, *Flemington*, *N. J.*

—I very cheerfully enclose my check for $3 in payment for the REVIEW from April, 1900, to April, 1901, and thank you for publishing so good a paper for so little money. The records will show that I have been a subscriber for many years, so I am in a position to say that the REVIEW gets better as the years go by and the March number of 1900 is the brightest jewel of them all.—*Dr. A. W. Axford*, *Naughright*, *N. J.*

—Enclosed please find my check for three ($3) dollars, being my subscription for the Review for the ensuing volume. While I am not in arrears, I confess I have not always paid so early, but I am at this time prompted to do so largely to show my appreciation of the Review in general, but at this time stimulated by the interesting ten cases of azoturia so successfully treated with potassium iodide by Dr. Childs, of Saratoga, and reported in this month's Review. Of course, I do not say that the doctor has made any mistake in his diagnosis, but it will be conceded that his successful treatment of ten cases in succession beats all records, and there may be some readers of the Review sceptical enough to infer that had even one died out of the ten and the convalescence of some of the rest a little more protracted their doubts might be removed. The pathology of this disease being rather obscure, can it be that there is a mild form for the country and a malignant type for the city? What say you?—*L. McLean*, *M. R. C. V. S.*, *Brooklyn*, *N. Y.*

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,

Veterinary Publisher, and dealer in Veterinary Books, Drugs and Instruments, is the authorized agent of the Review in Chicago and the Middle West, and will receive subscriptions and advertisements at publisher's prices.

HORSE AMBULANCE FOR SALE.

The widow of the late Dr. Wm. H. Harbaugh, of Richmond, Va., wishes to dispose of his ambulance, which he had specially built and used but a short time before his death, it being now practically as good as new. Any one wishing such a desirable addition to his hospital will do well to address Mrs. Sallie I. Harbaugh, Fairmount, Richmond, Va.

SECRETARIES OF V. M. ASSOCIATIONS

Can make money for themselves and do much good to their profession by getting up Subscription Clubs for the Review. Write us for club rates and full information.

REVIEWS FOR EXCHANGE.

I have these duplicates: Vol. XVIII, July (1894); Vol. XV, April and May (1891). I need the following: Vol. XIX, September and October (1895); Vol. XVII, January (1894). Would like to exchange with some one having duplicates, etc. Hugh Thomson, V. S., Sharbona, Ill.

NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the American Veterinary Review. Any one having an extra copy of that number please address H. D. Stebbins, V.S., West Winfield, N. Y.

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Volumes 2, 4, 8, 9, (complete); April, '79, '81, '82, '83; May, '79, 81; June, '79, '81; July, '79, '81; August, '79, '81, '83; September, '79, '81, '83; October, '79, '81; November, '79, '81, '83; December, '81, '82, '83; January, '80, '82, '83, '84; February, '80, '83, '84; March, '83, '84.

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AMERICAN VETERINARY REVIEW.

MAY, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLE.

HYDRARTHROSIS AND HYGROMA.—The rebelliousness to treatment of dropsical conditions of articular and tendinous synovial bursæ is often for veterinarians a cause of great concern. While in many cases they only assume small proportions, which after a certain lapse of time do not prevent the animal from being useful, yet remain a permanent blemish, interfering more or less with its market value, there are many circumstances when the dropsical state keeps increasing, where the walls of the sac and their surrounding tissues become infiltrated and hardened, and where the affection is no longer an eyesore, but interferes with motion, gives rise to lameness, deforms the joint and the leg, and renders the animal entirely unfit for work. Many are the forms of treatment which have been patronized, but most of them have had for their object the removal of acute pains, or a certain reduction in the size of the tumor, and many also have been the failures which have followed the various applications of cold, of counter-irritation, of punctures, of cauterization, etc.

European veterinarians in France and in Italy have lately reported series of experiments that they have made which seem, by the results obtained, to indicate that new forms of treatment are advisable.

In the December, 1899, issue of the *Receuil*, are published attempts which were made on windgalls and articular thoroughpins by Mr. Calvè. He has resorted to three methods of operation: (1) By obtaining *cutaneous cicatricial bandage* only, in removing a flap of skin on either side some 10 or 15 centimeters wide, and sewing the edges together. The cicatrix forms a compressing bandage. This method has given him only doubtful results. (2) By obtaining a *double cicatricial bandage*, by excising a flap of skin as in the first case and also one from the cellulo-aponeurotic coat which separates the skin from the synovial tumor. The aponeurosis is sewed up with catgut and the skin with hairs of Florence. Out of four cases, three gave him quite satisfactory results, a marked reduction in the size of the synovial enlargement. (3) By a third method, the experiment was carried in, involving the walls of the synovial sac with the excision of the aponeurosis and of the skin covering, it not in excision but in the cicatricial pressure. In other words, by *suture of a portion of the synovial pouch itself.* The first two layers were incised as mentioned before, and then the synovial tumor carefully punctured. The synovia escapes, the membranous sac shrinks and becomes flabby, and then raised with a broad pair of forceps, when suture is made of its walls, involving a certain thickness of a fold of the serous. Sutures of the aponeurosis and of the skin are applied over it. Performed on two subjects, one gave excellent results, without complications, another died of lung trouble four days after the operation.

Through the *Clinica Veterinaria* we are told of a large series of experiments made at Milan by Prof. A. Baldoni. His experiments, however, differ from those of his French *confrère* in being applied to chronic dropsy of tendinous sheaths (hygromas). His mode of treatment is more serious, the object being to obtain a radical cure. It consists in the dissection of the thickened infiltrated structure under the skin and also the removal of whatever portion of serous membrane can be extracted. The experiments were carried on upon one case of enormous ectasia of the sheath of the flexor of the phalanges, communicating with the tibio-tarsal joint, and containing a semi-floating body ; this animal had to be destroyed on account of the fracture of the opposite femur, when improvement was already quite marked; a similar case of the tendinous sheath of the anterior extensor of one hind leg, with perfect recovery; a case of ectasia of the great sesamoid sheath of the hind leg, with much deformity, which proved unsuccessful and had to be destroyed; one of the sheath of the anterior extensor of the phalanges in a hind leg, with recovery; one of the flexor of the phalanges of the hind leg, with complications on the opposite extremity, with great improvement; one case of similar trouble also on a hind leg, with recovery.

If one takes into consideration the fact that all those cases were old, chronic, and with extensive alterations of structure, although they have not been all successful, they are, to say the least, very encouraging, and it seems very plausible to say that, applied upon cases of much milder form, and with more strict antisepsis, veterinarians may in some instances be justified in recurring to this new treatment.

* * *

TUBERCULOUS MILK AND PRODUCTS.—Numerous experiments have been made upon the resistance of the tuberculous virus to the action of heat. The results that have been obtained have not always been alike, and marked differences have been observed, according to the mode of heating, its duration, the condition, quality and state of the virulent substance, and many other causes. Professor Galtier, of Lyons, has recently made special experiments on the milk and meat of tuberculous animals, and has come to the following conclusions:

Milk carrying tuberculous germs is not sufficiently sterilized by being heated at 70°, 75°, 80°, 85°; these temperatures acting for six minutes produce only a partial destruction or a more or less marked reduction in the virulency; introduced in that condition, even in massive doses, in the peritoneum of guinea-pigs, a more or less extensive tuberculosis may follow more or less rapidly; repeated ingestion of milk may be followed by tuberculosis, even when it has been exposed to a temperature of 75° from 5 to 20 minutes; therefore, to prevent all danger more certainly, milk of suspects or tuberculous animals *must be* boiled before being consumed.

In relation to the consumption of tuberculous meat or products, previously sterilized by heat, Professor Galtier says that the accidental consumption of sterilized tuberculous products cannot promote toxic effects ; that even repeated meals, composed of substances containing relatively great quantities of sterilized tuberculous lesions, do not give rise to any indisposition ; that the ingestion of well cooked lesions and of their bacillus is without danger ; that there is no danger to fear from the use of meats and organs of tuberculous animals *properly cooked*, even if they should be the seat of some lesions.

* * *

RABID LESIONS IN THE DOG AND THE POST-MORTEM DIAGNOSIS OF THE DISEASE.—Except the condition of the abnormal contents of the stomach of rabid dogs, no lesions are observed at the autopsy, and to establish a positive diagnosis it is necessary to resort to the inoculation into rabbits of the nervous substance of the suspected animal. Examination of the stomach is doubtful. Inoculation necessitates the loss of fifteen to twenty days. In both cases the indications for the necessity of early preventive treatment of a person who has been bitten are difficult to establish. At the Royal Academy of Medicine of Brussels, Mr. Nelis, of Louvain, has presented a report which throws an important light on the question of the diagnosis, in which he says that he has succeeded in establishing comparatively characteristic lesions of the nervous system of rabid animals. Those affecting the cerebral and spinal peripheric gangloin, consist in the *atrophy*, *invasion and destruction of the nervous cells by cells of neoformation which appear between the nervous cells and their endothelial capsule.* There is, then, a lesion, already mentioned by Babes, under the name of rabid tubercle, which has somewhat the same signification as the glanderous tubercle and the tuberculous neoplasia.

In controlling examinations made by Professor G. Hebrant, of the Brussels School, the lesion was found in the cadavers of six dogs, in which rabies had been diagnosticated during life, and in 8 out of 12 suspected animals, 5 of which were confirmed by inoculation to rabbits.

From these observations it seems evident that the presence of this lesion is one which deserves great attention and ought to be inquired into by minute observation. A. L.

ETIOLOGY OF CANCER.

The steady increase of cancer among both the human and animal species has of late directed the labors of pathologists and biologists in various parts of the world to attempt to arrive at a definite conclusion concerning the true causation of this most formidable disease. Whether the increase of cancer is due to the more exact scientific methods now employed in the diagnosis of the disease, and which renders its detection in the incipient form more easy than formerly, as is claimed by some investigators, and that hence the increase of the disease is more apparent than real, the unpleasant truth remains that cancer according to the latest mortuary statistics is on the increase, even after microscopy has permanently eliminated from the list of cancer many pathological conditions heretofore classed as cancerous, such as localized tuberculosis, actinomycosis, botryomycosis, etc.

The opinion hitherto nearly universal among pathologists that cancer was caused by a specific cancer bacteria belonging to the unicellar plants or Schizomycetes of the lowest order of the vegetable kingdom, is slowly giving way ; because, in all the innumerable attempts that have been made to isolate such a specific cancer bacteria, failure has been met with, several different organisms being found in the cancerous neoplasms. The more rational theory of the etiology of cancer is, therefore, gaining way that cancer is caused by several different organisms belonging not to the vegetable, but the animal kingdom, and that these organisms undoubtedly belong to the order of *rhizopoda*, and class *mycetozoa*. Recent laboratory experiments have been carried out in which cases of undoubted carcinoma were produced in animals by the injection of culture medium secured from cancerous tissue containing the above animal parasites.

The ever increasing addition to scientific knowledge causes a constant changing of the line of demarkation between the animal and vegetable kingdoms, between whose border lands there lies a vast unexplored region; a sort of "No man's land" teeming with numerous and varied forms of organic life; many of these organisms are, no doubt, disease-producing, but of so minute a form as to be beyond the visual range of our most powerful microscopes. There is, perhaps, no field of original research that will so well repay the patient labors of the future pathologist and biologist as this field; or supply more lasting benefits to human and animal life. W. J. M.

"THE COBBLER AND THE LAST."

A monthly magazine, called *The Stable*, published in New York City, frequently contains articles upon subjects allied to the veterinary profession, some of which emanate from reliable sources, but most of them are innocent of any real value, and are full of untrue and misleading statements. They are on a par with the *Journal's* alleged scientific editorials, one of which was recently reproduced in the REVIEW, wherein the membrana nictitans was stated as the cause of pinkeye in horses, for which its extirpation was advised. In the January issue of *The Stable* a leading editorial dealt with a crusade said to have been inaugurated in Chicago to compel owners of horses to have them properly shod, as great suffering was alleged to flow from this source. While there will scarcely be found any one with a knowledge of the subject who will dispute the general fact, we fancy the situation in Chicago is not as bad as the article makes it appear, and certainly the condition is little worse in the Windy City than in other large municipalities. And while the editor cries out in plaintive tones for reform in this direction, his learned suggestions would probably inflict more suffering upon the object of his solicitation than all the horseshoers in Chicago combined. We select one paragraph from the article for illustration :

" The frog is a delicately constructed part of a horse's foot and should be protected by a well-balanced and nicely-fitting shoe. In the cases of thoroughbreds that wear the thinnest kind of plates—*plates that do not always keep the frog from contact with the ground*, we often read of paralysis setting in and, if the ill is not remedied, the horse goes lame and is unfit to run for the purse. Killing the nerve is a remedy that in the past has been applied by unscrupulous owners and the method was the *hot iron*. By the process the animal became dull to all pain in the hoof nerve centre and ran along as though he had never been abused. But a wise and humane law put a stop to 'nerving,' under penalty of severe punishment."

In its indignation against the horseshoers of Chicago for their ignorance and poor workmanship *The Stable* sounds an alarm that " if stringent measures are not at once adopted to protect horses against the incompetency of alleged shoers, the horseless vehicle would be a blessing." To show how perniciously the craft of Chicago are plying their murderous work, it narrates that " Dr. A. A. Locke, a veterinarian and horse dealer, selected 100 draft horses . . . . and of them 43 were provided with shoes without proper calks, 15 with unbalanced shoes, of irregular weight and application, and 23 suffering from bad workmanship of smiths. Think of such a condition and then cry out against the automobile." It is advised that inspectors be appointed through municipal legislation, to examine the feet of draft horses, and to correct the evils so existent in that city. If such a ridiculous act were foisted upon the public, we sincerely trust, for the sake of our equine friend, that its enforcement will be placed in other hands than reformers of the school of which the writer of that editorial is a familiar example. With all the alleged incompetency of the horseshoeing fraternity, there is less danger of injury and suffering than from such brilliant ignorance as is displayed by asinine assumists of his type.

SECRETARY MORRIS, of the New York State Veterinary Medical Society, visited the REVIEW office during April, and was quite enthusiastic regarding the prospects of a great meeting at Ithaca next September. He is in communication with the Local Committee, and assures us that Chairman Williams is already laying the foundation for a grand clinical programme, demonstrating the most classical and practical operations of modern surgery. With important papers from members throughout the State, the meeting should be a valuable one, and it is earnestly hoped that the efforts being put forth will yield good results in an increased membership and augmented interest.

DR. ROBERT W. ELLIS contributes to this number a very thorough and interesting report of an extensive disease of the kidney in a horse. It is an object lesson to veterinarians, showing how much value a systematic investigation of such rare conditions will yield, and what an addition to professional knowledge may be made by carefully recording such observations through the medium of the journals.

ORIGINAL ARTICLES.

TEXAS FEVER.

EXPERIMENTS MADE BY THE MISSOURI EXPERIMENT STATION AND THE MISSOURI STATE BOARD OF AGRICULTURE, IN CO-OPERATION WITH THE TEXAS EXPERIMENT STATION, IN IMMUNIZING NORTHERN BREEDING CATTLE AGAINST TEXAS FEVER FOR THE SOUTHERN TRADE.

BY J. W. CONNAWAY, VETERINARIAN MISSOURI EXPERIMENT STATION, AND M. FRANCIS, VETERINARIAN TEXAS EXPERIMENT STATION.

GENERAL OUTLINE OF THE WORK.

For many years Texas fever has been a serious obstacle to the growth of trade in blooded breeding cattle, between the Northern breeders and the Southern cattle raisers. The losses from this malady in cattle shipped from the north are rarely less than forty per cent. and frequently seventy per cent., or more. The pressing need for some practical method of preventing these losses has led the Experiment Stations of Missouri and Texas and the Missouri State Board of Agriculture to undertake the experiments reported herein.

This coöperative work was begun in 1896, and is still in progress. The interests of the cattle industry demand that the results obtained up to the present time be presented in official form. There is probably much work yet to be done before the methods, which can now in careful hands be employed with a great degree of success, reach the perfection that is desirable.

The work reported herein includes:

I. Experiments to determine whether sterile blood serum of immune southern cattle contains any chemical substance of the nature of an antitoxin, or toxin that might be utilized practically in stimulating at least a passive immunity in susceptible cattle.

II. Experiments on immunizing cattle by infection with the micro-parasites of the disease by means of *tick-infestation.*

III. Experiments on immunizing cattle by infection with the micro-parasites of the disease through *blood inoculation.*

These will be discussed in the order named. Only a brief discussion of the first two lines of work will be given in this bulletin.*

The final results of the experiments on inoculation with sterile serum show that such material possesses no protective properties.

Immunizing by tick-infestation can be employed with success, but on account of the necessity of maintaining a quarantined pasture, and the necessity of hand-feeding in the case of calves of non-immune cows, this method is not as practicable as that of blood inoculation.

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* The full details, temperature records, etc., of the first two lines of work will be given in the next Annual Report, for the benefit of those who are interested in these matters from the purely scientific point of view. These records would unnecessarily burden this bulletin, which is mainly intended to present results of practical interest.

In the blood inoculation experiments, over four hundred head of thoroughbred cattle have been used. The losses from inoculation and from subsequent exposure to infected pastures in Texas have been less than eight per cent.

The cause of "Texas fever," and the means by which it is transmitted, have been so fully presented in Experiment Station Bulletins, and in the agricultural press, that any extended treatment of these matters will be unnecessary for the purposes of this bulletin.

It will be sufficient to state that the cause of the fever is a minute parasite occurring in the blood of southern-raised cattle, but causing in these under ordinary circumstances no illness, these cattle being immune; but when transferred in any considerable numbers to the blood of northern-raised cattle, give rise in the latter to a serious fever.

The natural way in which these micro-parasites are transmitted is by means of the southern-cattle tick (*Boöphilus bovis*). The disease can also be induced artificially in susceptible cattle by hypodermic injection of infected blood from southern cattle.

I. EXPERIMENTS ON INOCULATION OF NORTHERN CATTLE WITH STERILE SERUM FROM IMMUNE SOUTHERN CATTLE.

These experiments were made to determine whether the serum of the blood of immune southern cattle contains any chemical substance, apart from the living organisms of the disease, that might be used in a practical way in bringing about immunity in susceptible cattle.

The value of such a material would be that the danger of the development of an acute fever that attaches to other methods, as "tick-infestation" and "blood inoculation," would be avoided. Moreover, the material could be transported and used at any distance without the dangers from septicæmia that are liable to arise from the shipment to a distance of blood containing the living parasites.

The discovery of the protective properties of the serum of animals made immune to certain diseases, as diphtheria and tetanus, led to the somewhat broad statement by Behring, one of the chief investigators of serum therapy, "that if an animal has acquired immunity against a disease-producing micro-organism, or its toxins, the serum from the blood of the immunized animal will prevent the disease in another susceptible animal."

While Texas fever is due to a protozoan micro-parasite instead of bacteria, as in the case of diphtheria, the immunity attained on recovery from an attack of the disease appears to be as great as in the latter malady. And it was not unreasonable to suppose that, in the physiological processes by means of which immunity is established against Texas fever, some new product should be formed which might stimulate in the cells of a susceptible animal, a condition of metabolism like that of the cells of the immune animal, and thus establish at least a passive immunity that would tide the animal over the danger-period following tick-infestation.

The first experiment with sterile serum inoculation was made in the fall of 1896, on an eight-year-old cow. 200 c.c. of serum were inoculated subcutaneously during a couple of weeks previous to infesting her with ticks. After the infestation, this cow was inoculated with 80 c.c. more of serum. This inoculation began September 2d; the infestation was made September 16th, and the animal was kept under observation until November 2d, morning and evening temperatures being taken. During this time there was no elevation of temperature, except on the afternoon of 17th and 18th days following tick-infestation, 103.8 F. and 106 F. Outwardly, the animal appeared to be in perfect health throughout the experiment.

The following spring, in conjunction with the Mississippi Experiment Station, a lot of young cattle and one cow were inoculated at Enterprise, Mississippi. These had all sickened from accidental tick-infestation. Twelve other cattle had died, all but two of them being adult animals. All the inoculated animals lived. A full report appears in Bulletin No. 37, of the Missouri Experiment Station, where the method of preparing the serum is described.

These experiments were not regarded as conclusive, since the season of the year at which the work was done, and the youthfulness of most of the animals inoculated, might account for the result. In order to give the matter a more decisive test a larger experiment was planned for the following summer, and carried out in conjunction with the Mississippi Experiment Station in June and July, 1897. A full report of the results upon the cattle shipped to the Mississippi Station appears in Bulletin No. 42 of that Station. Only a summary is given here.

Eleven head were inoculated, eight of these at the Missouri Station before shipping, and three after their arrival in Mississippi. These cattle varied in age from one and one-half years to eleven years. They were inoculated daily with serum in doses of 40 to 60 c.c., according to the size of the animal. The minimum quantity injected into any one animal was 146 c.c.; the maximum quantity was 772 c.c. After tick-infestation, all of them suffered from acute attacks of the fever, and all except two of the younger animals (2 years old) died.

During the same summer five head more were inoculated at the Missouri Station, two mature cows and three yearling steers. The material used in this experiment came from different sources than that used in the Mississippi experiment—one lot was obtained from the Texas Station, and another from a Texan animal at the North. One cow received subcutaneously a total of 230 c.c.; the other one 420 c.c., in doses of 20 to 40 c.c., over a period of two weeks or more, immediately preceding tick-infestation. Both died from acute attacks of the fever, following tick-infestation. Not the least mitigation in severity of the attack appears to have resulted from the use of serum.

The three yearling Jersey steers were inoculated with doses of 10 c.c. to 40 c.c., over a period of two weeks; one steer received 144 c.c., another 320 c.c., and the third 180 c.c. All of these suffered from attacks of the fever after tick-infestation, but recovered. A check animal, not inoculated, appeared to suffer more severely. This animal, however, was somewhat less vigorous.

In addition to the serum experiments one cow was inoculated with 50 c.c. of blood from an animal recently dead from an acute case of Texas fever. A small quantity of formalin was added to destroy the micro-parasites. But little physiological disturbance was noted ; indicating that no toxic substance was present. Bile from the same animal was used on another cow with like results. Both cows died from acute cases of the fever after tick-infestation.

While the desired economic end of this experiment was not attained, the data supplied in regard to the effects of tick-infestation are valuable in the experiments that follow.

It appears that so far as experiments have yet shown, the only way of producing immunity is through an actual attack of the disease, induced either by "tick-infestation," or by " inoculation with living infected blood."

II. EXPERIMENTS ON IMMUNIZING AGAINST TEXAS FEVER BY TICK-INFESTATION OF YOUNG CATTLE.

The fact has long been known to stockmen that calves are more resistant to Texas fever than mature cattle. The same fact has been observed in all scientific investigations of this disease where young and mature cattle were used. In the investigations of Smith and Kilbourne, into the nature and means of transmitting Texas fever, a large per cent. of adult susceptible cattle used in their experiments died when exposed to the infection, while only a small per cent. of the young animals succumbed. The case of the dairy herd at Enterprise, Mississippi (mentioned under " serum inoculation "), illustrates in a marked manner the greater resistance of young animals as compared with those more mature. In this lot were eleven head of grown cattle, four yearlings and twelve calves. Out of this number, all the grown cattle except one died ; while two of the yearlings and all the calves lived. Those that survived had been grossly infested with ticks and suffered more or less from the fever. In the serum experiments of the following summer, the same difference was noted between young and old cattle in resisting the disease.

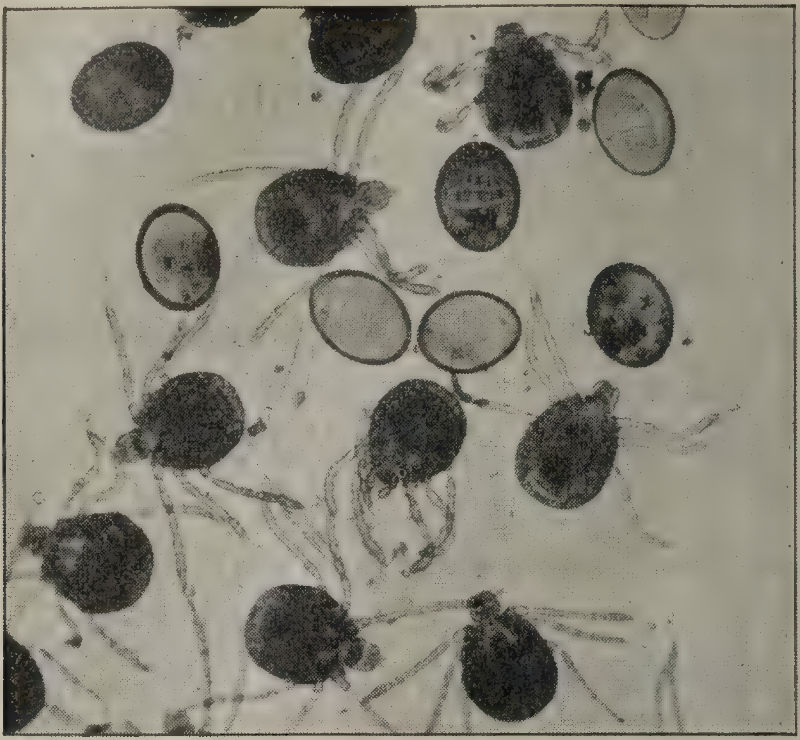

FIG. 1.—YOUNG FEVER TICKS—"BOOPHILUS BOVIS,"—AND EGGS—HIGHLY MAGNIFIED.

These observations led to the experiments to test the practicability of immunizing cattle on northern stock farms by tick-infestation. This work was begun in 1897, and has been continued to the present.

The following animals were used in the experiments: In 1897,

No. 1.—"Jersey," a yearling Jersey steer.*
No. 2.—"Spot," a yearling Jersey steer.
No. 3.—"Red," a yearling Jersey steer.
No. 4.—"Fawn," Jersey steer, 10 months old.
No. 5.—"Durham," Shorthorn steer, 14 months old.
No. 6.—"Estes," grade Shorthorn bull, 2 months old.
No. 7.—Jersey bull calf, 6 weeks old.
No. 8.—Jersey bull calf, 5 weeks old.
No. 9.—Jersey bull calf, 3 weeks old.
No. 10.—Jersey bull calf, 3 weeks old.
No. 11.—Jersey bull calf, 3 weeks old.
No. 12.—Jersey bull calf, 2 weeks old.

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* Nos. 1, 2 and 3 were also used in the "Serum Experiments."

In 1898, all the above except Nos. 4, 6, 11 and 12 were reinfested and the following animals were added to the experiment:

No. 13.—Holstein heifer "Bessie," 10 months old.
No. 14.—Holstein heifer "Beauty," 10 months old.
No. 15.—Jersey bull calf, 4 weeks old.
No. 16.—Jersey bull calf, 2 weeks old.
No. 17.—Jersey bull calf, 3½ weeks old.
No. 18.—Jersey bull calf, 5 weeks old.
No. 19.—Jersey bull calf, 3 weeks old.
No. 20.—Jersey bull calf, 5 weeks old.
No. 21.—Jersey bull calf, 3½ weeks old.

In 1899, six animals of the first group (Nos. 1, 2, 3, 5, 7 and 8), were reinfested for a third season.* In the second group Nos. 13, 13, 15, 16, 19 and 21, were reinfested a second season, and all have lived.

Certain individuals and groups in the above lot of animals were treated differently; some were grossly and continuously infested, while others were but slightly or intermittently infested. It will be of interest to notice briefly these individual cases and groups.

TICK-INFESTATION OF YEARLINGS.

No. 1, "Jerry," was infested July 27, 1897, with several hundred fever ticks. These had nearly all matured and fallen off by September 1st. The steer remained free from ticks for about a month, and was again reinfested with several hundred more ticks. In addition the steer became grossly reinfested from the pasture. An acute attack of the fever resulted from the first infestation; the morning temperature on the twelfth day after infestation was 105 F. and continued high for four days when it fell to normal. The afternoon temperature during this period ranged from 105 to 107 F. The steer fell off some in flesh, became somewhat gaunt, but continued to graze. He made a good recovery, and at the time of the second infestation was lively and apparently in perfect health. The second more gross infestation produced no fever. Temperature observations were continued until November 1st. The animal went into winter quarters in excellent condition. This steer was infested in a different pasture from Nos. 2, 3, and 4. He was grossly reinfested the following summer and fall (1898) but showed no evidences of fever. Through the spring, summer and fall of 1899 he was again exposed to a presumably more severe infection in the quarantine territory, at College Station, Texas, and remained in perfect health.

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* All of these except No. 7, were shipped to the Texas Experiment Station, where they have been on infected grounds since January 1st, without showing any signs of fever. Temperature records and blood examinations were made twice a week. No. 7 was kept at the Missouri Experiment Station and given a severe test without showing any fever. See cut p. 15.

The following group of yearling Jersey steers: No. 2, "Spot"; No. 3, "Red," and No. 4, "Fawn," were infested August 28th, 1897, with about 200 ticks each. They had also been placed a week before upon a pasture that proved to be grossly infested with ticks (from "single dipped" Texas cattle). Morning and evening temperatures were recorded from date of infestation until November 1st. A few mature ticks were found September 13th, twenty days after infesting. In a few days mature ticks were numerous, and continued so for a week. On September 26th, these steers were almost free from the ticks coming from the artificial infestation. This infestation produced scarcely any elevation of temperature in Nos. 2 and 3. In No. 4, several high afternoon temperatures had been observed, but nothing indicating a continuous fever period. October 29th, it was observed that the animals were well infested with small ticks picked up from the pasture. This infestation proved to be more severe. From October 4th to 9th, No. 2, "Spot," had a fever period, morning temperatures ranging from 102.7 to 105.7 F., and evening temperature for two weeks from 103.7 to 107.7 F. The animal became gaunt, lay down much of the time, and had little appetite. October 11th, the morning temperature was normal and continued so until November 1st, when regular observation ceased. A few immature ticks were found on this steer as late as January 3d. No.

3, "red," showed no outward signs of fever until October 20th, but from October 7th to 16th the evening temperatures had ranged from 103.5 F., to 106.4 F., and the morning temperature from 101 to 103 F. The calf had fallen off some in flesh. The morning temperature October 20th was 103.3; evening temperature, 106.4, calf stupid. October 21st, morning, 104; evening, 106.2, calf sick. October 22d, morning, 104; evening, 105.9; calf dull and gaunt. October 23d, morning, 101.5; evening, 105.4. October 24th, temperature normal. Calf has been grossly and continuously infested with ticks.

FIG. 2.—GROUP OF JERSEY CALVES AT TIME OF FIRST TICK-INFESTATION.

No. 4, "Fawn." This calf showed but little signs of fever from the first infestation. From August 1, to September 25, the morning temperature remained normal, and only an occasional high evening temperature occurred. On September 26th, the evening temperature arose to 104 F., and from that date until October 30th, the evening temperatures remained high; ranging from 103.7 to 106.3 F., only an occasional normal temperature being observed. From the 23d to the 29th the temperature ranged from 103 to 103.6, but through the greater part of the experiment, the morning temperatures were normal.

The continuous and severe infestation to which these calves were subjected from running on grossly infested pastures caused them to fall off greatly in flesh. They went into winter quarters in bad condition, with skin harsh and scurfy. This condition was, however, in part due to lack of nutrition; the pastures became dry and short. On December 31st, calf No. 4 died from accident, having been horned into the manger, probably by a Texan cow that was kept in the same pen. No. 2 and No. 3 improved during the winter, and were put on grass in the spring in fair condition.

In July, 1898, both were reinfested with Texan ticks. These matured, and the steers became grossly reinfested from the pastures. Neither of these animals showed any signs of sickness during the season. They were never " off feed " and were in good condition at the beginning of winter. These two steers were shipped with others to the Texas Experiment Station on December 28, 1898, and have been on infected grounds since January 1st, 1899. No signs of fever have appeared. The temperature records and tests of the blood by means of the hæmatokrit show that these steers were fully immunized by the tick infestation at the North.

No. 5, "Durham," shorthorn steer, 14 months old. This steer was used as a check on seven head of double dipped Texan cattle. He was exposed from July 19th to October 27th, 1897, and during this time was observed almost daily for ticks. The dipping proved to be so nearly perfect that during the summer and fall only five ticks were found on this animal, and but ten ticks on the seven head of Texan steers, from infection of the pasture. No doubt many ticks escaped observation, but it is safe to say that during the entire season not more than 25 or 50 ticks infested this steer. This very mild natural infestation gave rise to no serious symptoms, and the animal remained in good condition. This steer was reinfested the following year to determine whether so mild an infestation had made the steer immune. On July 21st, 1898, several hundred Texas ticks were applied to this animal, and later in the season he became grossly infested from the pasture. Ripe ticks were found 23 days after infestation. The animal showed a few high temperatures and some depression on hot afternoons in July and August, but no serious illness occurred. The steer did well through September. In October he fell off some on account of short pasturage, and gross tick infestation. At the close of the season the steer was fed a while, and was shipped in fair condition, on December 28th, to the Texas Experiment Station, where he has been exposed since January 1, 1899, without showing any signs of fever.

The two Holstein heifers, Nos. 13 and 14, about 10 months old, were infested August 13th, 1898, with 300 ticks each, and later they became grossly infested from the pasture. The first infestation was made during the warmest part of the summer. The heifers showed high evening temperatures through the hot weather. Heifer No. 14 suffered more severely, and in October developed an acute case of the fever, dying October 8th, 56 days after the first infestation. The post-mortem showed the usual lesions of Texas fever, such as bloody urine in the bladder, softened spleen, yellow liver, and bloodless condition of the flesh. This heifer was also found to be affected with "Hoose." The small bronchi were badly infested with the parasitic worms of this disease, and pneumonic areas were found in the lungs.

The long time that elapsed between the first infestation and the death of this animal, makes it probable that she would have lived if she had not been subjected too soon to the gross tick infestation that occurred on the pasture, and had not been suffering from another disease.

The Holstein that survived (No. 13) was also affected with lung worms, and did poorly through the winter, but improved when put on pasture in the spring. She was in fine condition June 21, 1899, when she was reinfested with several hundred ticks. Later she became well infested from the pasture. In addition to the tick infestation, this heifer was inoculated June 15th with 6.5 c.c. infected blood from a Texan cow, and again on August 4th with 8 c.c. This severe test caused no fever. The heifer has been in the best of health and condition throughout the season.

TICK–INFESTATION OF YOUNG CALVES.

Calf No. 6, 2 months old, was purposely infested (July 28, 1897) with a very large number of ticks, to test the effect of sudden gross infestation on a young animal. The number of ticks applied was doubtless far greater than would, under natural conditions, infest an animal at one time. On the morning of August 6th, nine days after infesting, the calf had a temperature of 106.2 F. On the following day, 107.2 F., and death resulted August 10th, thirteen days after the ticks were applied. A post-mortem showed lesions of Texas fever. This experiment shows that sucking calves, which ordinarily are quite resistant to the disease, may succumb if excessive infestation occurs.

In the fall of 1897, six young Jersey bull calves, 2 to 6 weeks old (Nos. 7, 8, 9, 10, 11, 12), were put in a quarantine pen and infested artificially with from 25 to 50 Texas fever ticks. After these had matured and dropped off, the calves were infested again with from 75 to 200 ticks. These also matured. Some of the calves for a short time were off feed and a little dull and gaunt, but at no time during the infestation period was any seriously sick. The thermometer showed some fever in each calf. This, however, was of short duration and of mild character. From fear of carrying the infection into the barns, these calves were kept in the quarantine pens somewhat late in the season, and were exposed to a few sharp winter storms, from which they all suffered severely, and two (Nos. 11 and 12) died. The post-mortem showed no indication of Texas fever. The four remaining calves were put in the barn December 12th, and in a few weeks were in excellent condition.

These calves were infested again the following summer, after they had been free from ticks seven months. Bull No. 7 was infested July 28, 1898, with about 400 ticks. July 7th, bull No. 8 was infested with 300 ticks, and again on July 7, with 100 more. Bull No. 9 was infested July 7, with 100 ticks, and again September 10th, with 500. Bull No. 10, with 200 ticks on July 28th, and again on September 10, with 500. The first crop of ticks matured without any of the bulls showing a fever period, only an occasional high temperature was noted on very warm days. On the 28th of August, No. 10, after becoming quite free from ticks, was somewhat gaunt and had diarrhœa, but appeared quite well in a few days.

In addition to the artificial infestation, these bulls became grossly infested with ticks hatched on the pastures.

As the result of excessive tick-infestation, and lack of proper nourishment from dry condition of the pasture, these young bulls fell off considerably in flesh, and in September, one of them, No. 10, developed an acute attack of the fever. The bull was found sick on September 30th, and died during the day. The post-mortem showed typical lesions of Texas fever.

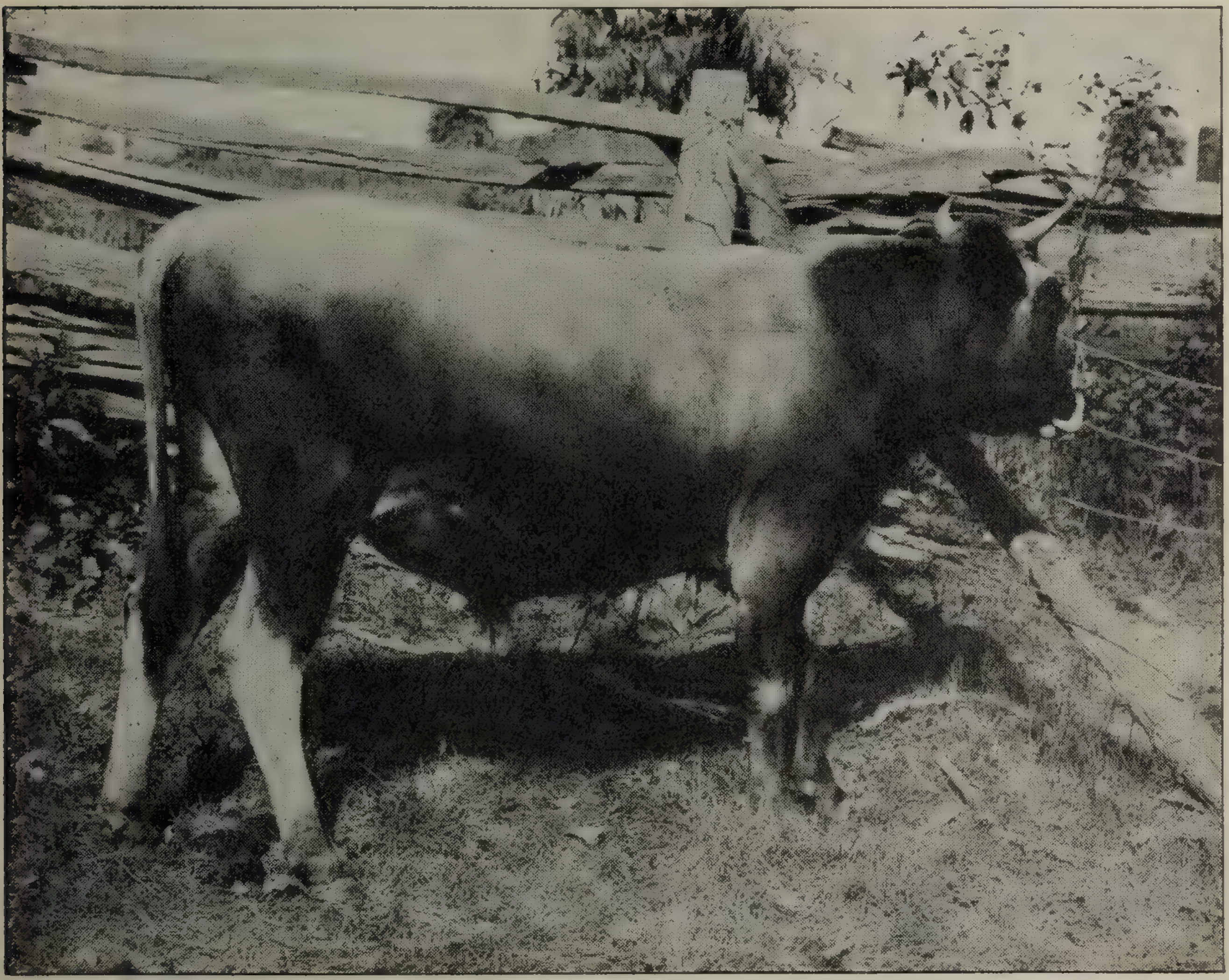


FIG. 4.—JERSEY BULL NO. 7. CALVED AUGUST, 1897. FROM A GROUP INFESTED THREE SEASONS.

On June 21st, 1899, bull No. 7 was artificially infested for the third season with several hundred ticks, and later became grossly infested from the pastures and was not free from ticks until October 1st. To test the immunity of this animal more

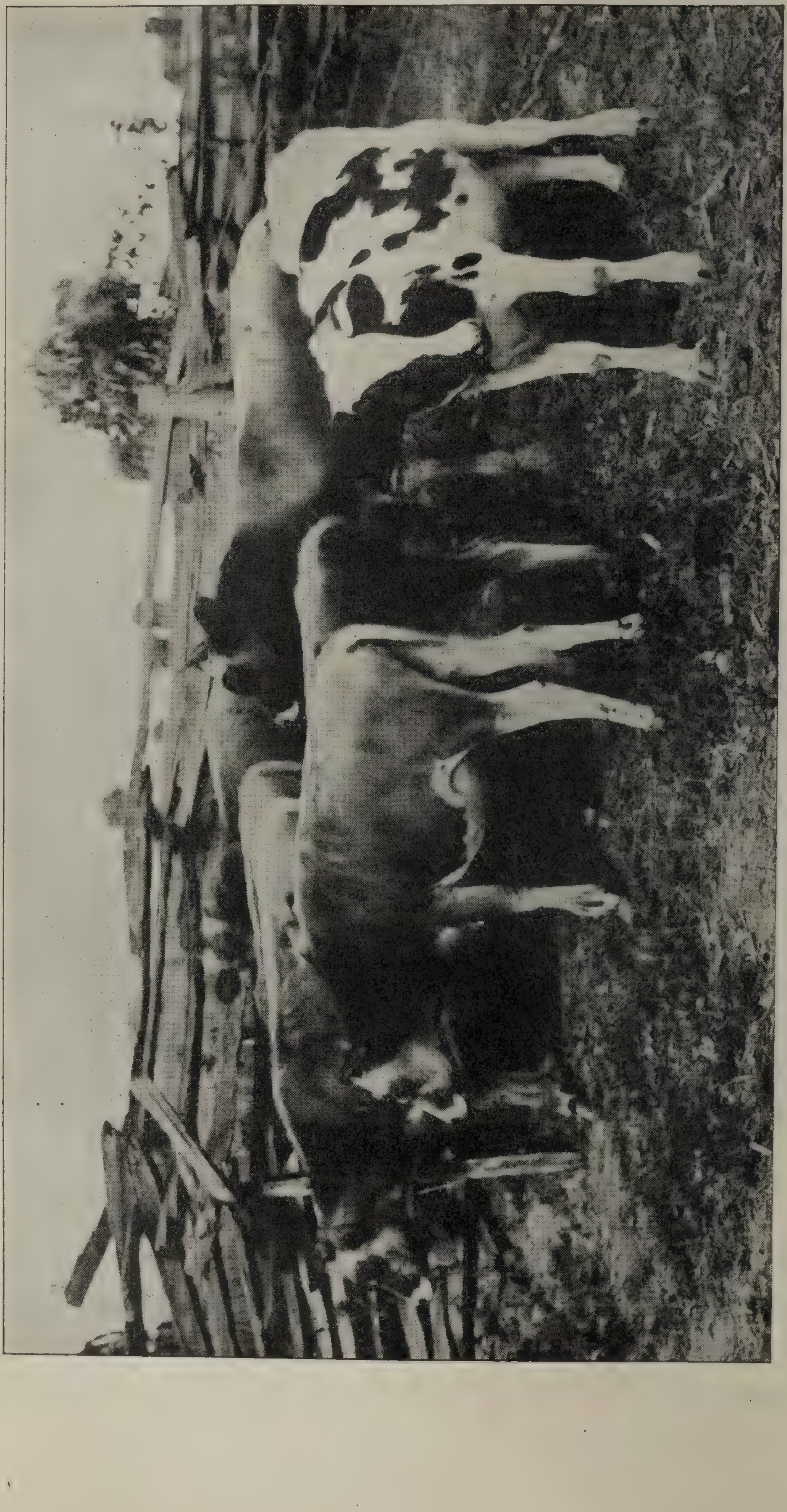


FIG. 3.—GROUP OF CALVES AT CLOSE OF SECOND YEAR'S INFESTATION.

severely, he was also inoculated with large doses of infected blood from a Texas cow. A dose of 7.5 c.c. was given June 15th, and a second dose of 10 c.c. August 4th. Daily temperature records were kept and during this time no rise of temperature indicating a fever period was shown. The blood was tested from time to time by means of the hæmatokrit to determine variation in the percentage of corpuscles; but little variation from the normal was observed. The bull appeared to be in perfect health during the entire season. A picture of this bull as he appeared at the close of the experiment is shown on page 15.

Bull No. 8 was shipped to Texas, December 28, 1898, and has been exposed to the natural infection on a pasture at College Station since January 1, 1899. This animal has remained in perfect health throughout the season. Temperature records and blood examinations were made twice a week.

Bull No. 9 was not reinfested the third season, but was killed March 20th, for a class demonstration, as the calf was affected with "Hoose," "verminous bronchitis." The post-mortem showed the parasitic worms of the disease almost plugging many of the small bronchi.

Another group of Jersey bulls (Nos. 15, 16, 17, 18, 19, 20 and 21) were infested with Texas fever ticks September 23, 1898. From 50 to 100 ticks were applied to each, and they matured on all the bulls. Four of the bulls showed scarcely any rise of temperature, while three showed more or less fever. All the latter had diarrhœa, no doubt in part due to change of food, from early weaning. No. 19 was quite sick, had bloody diarrhœa, but recovered. One, No. 18, died from scours, January 16, 1899, 115 days after the infestation; the post-mortem showed no evidences of Texas fever. All the other calves passed the winter safely, and, with the exception of No. 20, were well infested the following season, Aug. 1st to Oct. 15, 1899. No. 20 died from some unknown cause in the spring of 1899, after being put on pasture. As this death occurred before any of the calves had been reinfested and the pasture was shown to be free from ticks, the death could not have been due to Texas fever.

In addition to the tick infestation, all the calves were inoculated with infected blood. June 15th, previous to the second period of infestation, 3 c.c. of blood from a Texas cow was injected subcutaneously into bulls Nos. 15, 16, 17 and 21; they were again inoculated on August 4th with 5 c.c. each from the same animal.

No. 19 was inoculated June 13th with 4 c.c. from a native recovered cow, and six days later infested with several hundred ticks. June 29th, 16 days after the inoculation and 8 days after tick-infestation, the calf appeared to be in good health, the temperature was normal, and the percentage of blood corpuscles from hæmatokrit readings was 36 per cent. (about normal). On July 6th, 23d day after inoculation and 15 days after tick-infestation, the percentage of corpuscles had fallen to 20 per cent. On July 8th, the hæmatokrit reading was 13 per cent., the morning temperature 104.9, and evening temperature 106.5 F.; ticks in second moult, animal off feed, sluggish and gaunt. This condition appears to have arisen from the tick-infestation rather than from the blood inoculation. No rise of fever was noted at the usual period after inoculation. This calf was a little dumpish all summer, but has fed well.

None of the other calves showed any outward symptoms of illness apparent to the average observer; they were never off feed; the thermometer, however, showed that all of them had some elevation of temperature during the season and there was considerable destruction of blood corpuscles, as determined by means of the hæmatokrit. Bull No. 15 showed a diminution of corpuscles from 37 to 18 per cent.; No. 16, from 44 to 20 per cent.; No. 17 fell to 24 per cent.; No. 21 showed but little diminution in percentage of corpuscles. The greatest fall in percentage appeared to result not from the inoculation and earlier tick-infestation, as it occurred later in the fall after the pastures had become dry and grass scanty, and ticks more numerous on the pasture. All these calves had about regained the normal percentage of corpuscles at close of the experiment.

SUMMARY AND CONCLUSIONS. (TICK-INFESTATION.)

It will be seen from the history of the above 21 head of young cattle that but one died from an acute attack of the fever within the usual period of 12 to 20 days following tick-infestation, and that this one, No. 6, a two months old calf, was purposely infested with an excessively large number of ticks. The first crop of ticks matured on all the other cattle, and but few of the animals showed any distressing symptoms of the fever. The yearlings that were mildly or intermittently infested the first season did not suffer the profound nutritive disturbances noted in others that were grossly and continuously infested. (Contrast steers No. 1 and 5 with steers No. 2, 3 and 4, all infested in 1897.) Young calves, from 2 to 6 weeks old, infested mildly in the fall, suffered but little from the infestation, but were not fully immunized against the effects of gross infestation the following year, after being free from ticks for seven months. Bull No. 10 died from relapse in the fall of 2d season (1898), and No. 19 was quite ill his second season (1899), and others of the 1899 group while apparently in good health showed considerable destruction of blood corpuscles. An acute fatal relapse occurred in two animals (Nos. 10 and 14) following gross secondary infestation; both had matured ticks earlier in the same season and one (No. 10 mentioned above) had carried ripe ticks the previous fall. Lack of proper nourishment and a concurrent disease are to be regarded as contributing largely to these relapses.

Animals that had been well infested with the fever ticks at the north, proved immune when exposed to the more prolonged infestation occurring at the south.

Five head of the experiment animals died from other causes than Texas fever. Jersey bull calves from the dairy herd were mainly used in the experiments. They were taken from the mother quite young and fed by hand. Their care through the winter was such as is given ordinary stock cattle, and not that which is given to breeding animals intended for sale. These losses, largely preventable, would probably not have been so great in calves of the beef breeds intended for sale, instead of experiment.

A quarantine pasture has been maintained at the Missouri Station through four summers, and during this time no deaths have occurred in the farm cattle grazing in an adjacent pasture, separated by a space of fifteen feet.

From the above we may conclude that complete immunity is not acquired by the young animal through a single mild infestation with fever ticks, but that the immunizing process is a gradual one requiring several months for its completion.

The preferable way of effecting immunity by this method would be to give a mild infestation as early in the season as possible, and reinfest at intervals with a gradually increased number of ticks; permitting the animal to be free from ticks for a short time before reinfesting and seeing that all fever from the previous infestation had passed. Gross reinfestation from the pasture, before the animal is ready to bear it, may be prevented by one change to a clean pasture during the season.

One of the most important requisites in immunizing is that the calf be well nourished throughout the immunizing period. Otherwise stunting of the animal will occur, and occasionally a fatal relapse.

From the fact that exclusive hand feeding is not desirable in raising calves of the beef breeds, the tick-infestation method cannot come into large use in immunizing these animals, unless the breeder finds it profitable to maintain a herd of immune cows. There are no very serious difficulties in the way of maintaining infected pastures on northern stock farms, and the animal that has stood the test of tick-infestation at the north carries with him his own certificate of immunity, namely, the ticks themselves or their ineffaceable scars.

The blood inoculation method to be described may however meet all requirements.

(*To be continued.*)

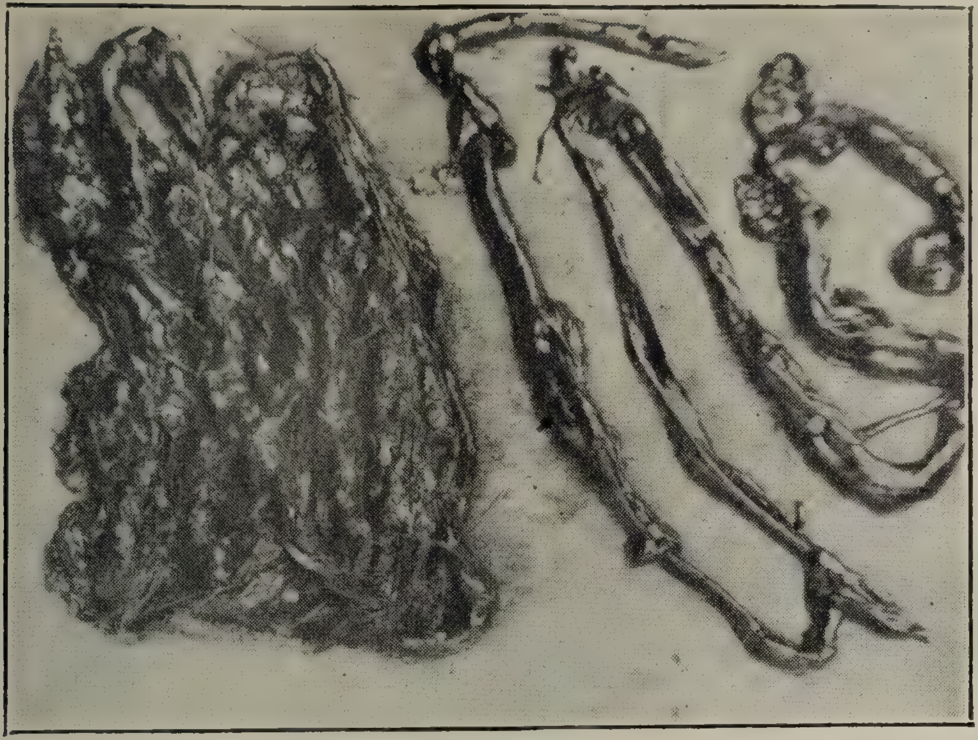
A PERINEPHRITIC ABSCESS, WITH HAEMORRHAGIC NEPHRITIS.

By Robert W. Ellis, D. V. S., New York University (Vet. Dept.),
with Report of Microscopical and Chemical Examinations, by Edward K. Dunham, M. D., New York University Medical School (Dept. of Pathology).

Was called on Sunday, Nov. 5, 1899, to see a chestnut gelding, eight years old, about fifteen and one-half hands high, weighing about ten hundred and fifty pounds. A "mustang," but of good form and disposition; had been in service two years. This animal was reported as having been passing clots of blood by the urinary passages for a week previous to the date of my call, and I was shown a clot about the size of a hen's egg, which he was said to have passed a short time before I arrived at the stable. This, I was informed, came after considerable forcing, and was followed by micturition. The horse's general condition was seemingly all right, and, attributing the condition to an inflamed, congested, or possibly lacerated state of some portion of the mucous membrane, either of the urethra or the bladder, possibly due to calculus of the latter, and being in a very great hurry at the time, I prescribed ℥ss doses of sanmetto, every six hours, until I should return on Tuesday, the 7th. On the day intervening between the 5th and 7th, a bottle of the horse's urine was sent to my office, blood-stained, but containing no clots.

When I saw the horse again on the 7th, however, I was shown a string of clotted blood, in one piece, eighteen inches long by perhaps one half an inch thick, tough enough to handle freely without breaking (I nailed them to a board and sat it upright to photograph them), and was again informed that the animal, after straining for a time, had passed this string, and then his urine. I then came to the conclusion, upon the strength of this information, and what he had told me the first day (what a pity we cannot get our information first-handed from the patient), that the difficulty undoubtedly lay above the urethra, possibly in the bladder. I reasoned that as the length of the blood-clot closely approximated that of the urethra, that that organ was probably the mould in which the clot was formed, between the time it left the bladder in the form of blood and the time when it was forced out immediately preceding micturition. You will remember that the attendant had insisted that the blood clots were forced out after considerable straining each time, and immediately followed by micturition, which would prompt the inference that the clotted blood clogged the duct through which the urine was to escape from the bladder. Stone in the bladder having been suspected as a possible cause of the hæmorrhage, a rectal examination of the bladder was made, which revealed nothing abnormal with that organ. Direct treatment to the walls of the bladder was now decided upon in the form of astringent douches. Accordingly a rubber tube was slipped on the end of a catheter, a funnel attached to the other extremity of the tube. The catheter was now passed, occasioning no pain or inconvenience to the animal whatever, the funnel being elevated above the horse's back, a gallon of alum solution at a temperature of 100° F. was allowed to flow into the bladder. This solution was retained for a few minutes, when the tube was removed and the contents of bladder allowed to flow out again, through the catheter; but, strange to say, as clear as when it entered it; at least so far as any trace of blood was concerned.

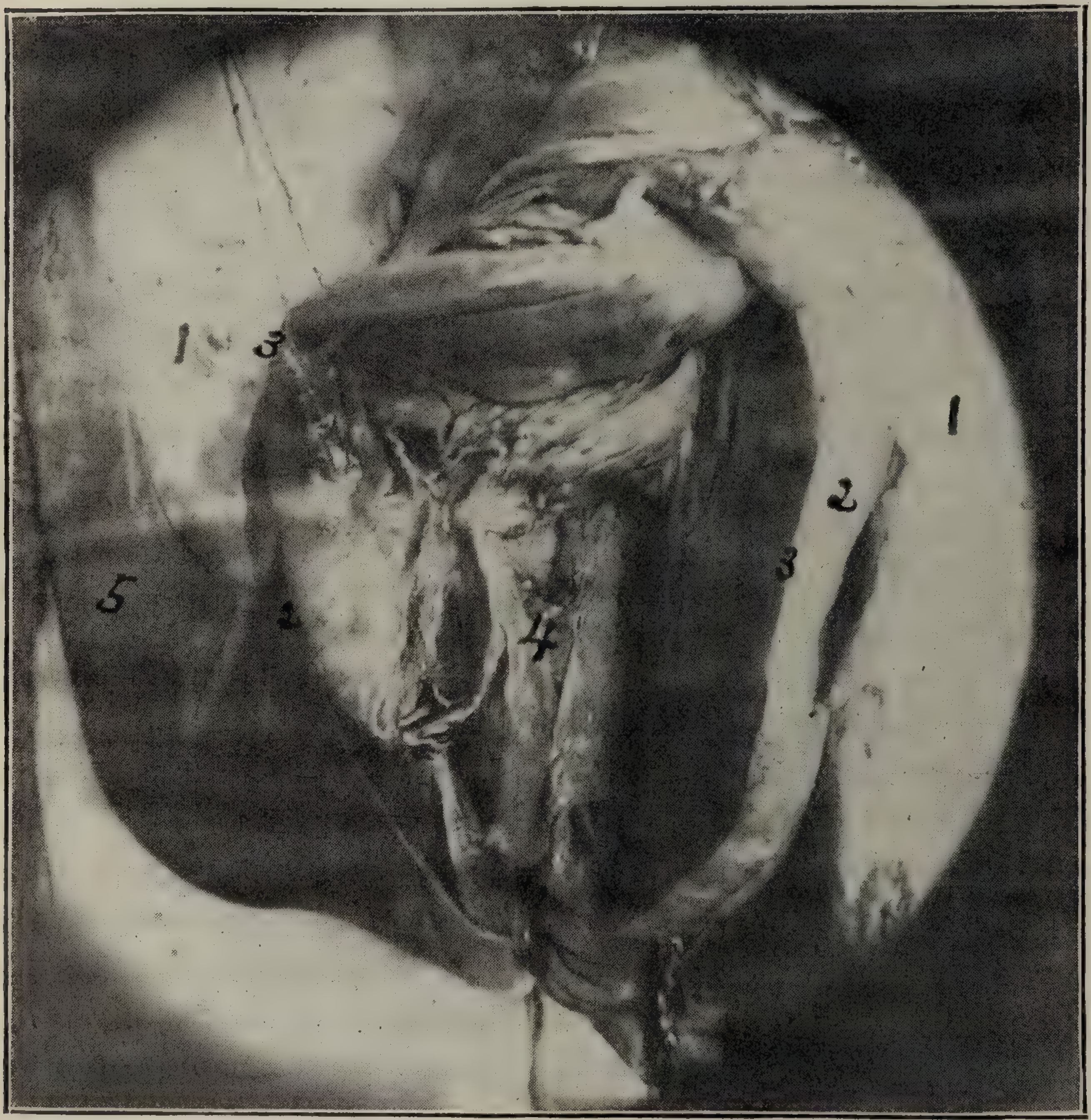
The next day the douche was repeated; but instead of evacuating the bladder through the catheter, as on the previous day, the catheter was immediately withdrawn, and after retaining the douche for a few minutes, the horse placed himself in position to urinate, and the solution again came away clear, and after it (as though impelled by one of those spasmodic movements which usually terminate micturition) came a blood clot, measuring about twenty-four inches in length and of the same thickness and texture as the one described. I might add to their description, to make it more complete, that on making a section, an extremely thin membrane appeared to envelop them, which, however, was not detachable; but upon manipulation



BLOOD CLOTS.

proving to be simply more toughened by exposure to the atmosphere. This blood-clot *following* the evacuation of the bladder, and *not* preceding it, as I had been repeatedly informed, exploded the theory of the urethra having been the mould for the clots, and I was also convinced, the solution coming from the bladder both times unstained, that the trouble was not in the bladder, but in the kidneys; so that what was intended for a therapeutic agent, became instead a diagnostic agent, and, as a consequence of this diagnosis, I gave a grave prognosis. At this juncture, I prescribed ʒ ii doses of potassii iodidum, three times a day, and requested the owner to let me have consultation upon the case, which he refused, saying he was satisfied that I was doing all that could be done. This I thoroughly realized, but as he still retained hopes, and I appreciated the gravity of the case, I was desirous, in addition to having some light shed upon the cause of the symptoms, of having my prognosis verified or strengthened, at least, by a second opinion. However, in the course of a day or two, as the condition continued, and 18, 24, to 40 inches of those strings of clotted blood were ready for me, each day when I called, laid out upon boards; box lids, newspapers, etc., I suggested consultation again, to which he acquiesced, and Prof. James L. Robertson was asked to meet me at 4 P. M., Nov. 12, which he did.

Up to this date the horse, eating one day well and not so well the next, had not lost flesh or run down in condition to an appreciable extent, and showed no external change in form or outline (neither did he at any time, subsequently, for that matter). I explained the conditions that I had found, my suspicions from the history as given me, and their subsequent dismissal after an opportunity for personal observation, and new conclusions,



1, 1, Body of tumor. 2, 2, Sides of kidney. 3, 3, Point of incision, dividing kidney, left side being drawn away from right by a cord. 4, Pelvis of kidney. 5, Spleen, held in position by nail in upper extremity.

treatment, etc., up to the day and hour to Dr. Robertson, who, after a general examination, made rectal exploration, prompted by suspicion of tumor in the neighborhood of the kidney, which he was finally able to outline on the left side. My arms not being as long as Dr. Robertson's, I could not outline as much of the tumor, but could touch the most posterior point of it. The horse was then walked out into the yard, and the two sides compared, which appeared symmetrical, so far as the eye could appreciate. On being led back into the stable and placed in his stall, the horse urinated, and the expulsion of the urine was accompanied and followed by the passage of about forty-eight inches of clotted blood, moulded in perfect cords as before, half inch in diameter, which, together with the bloody urine, was caught in a stable pail. Into this peculiar mass my consultant, a teacher and practitioner for a quarter of a century, gazed long and earnestly, occasionally manipulating those long tough clots, and wondered how the horse lived, and looked so well. To me, after eleven years of uninterrupted practice, this sight, which I had repeatedly witnessed for several days, was strange ; to Prof. Robertson, with more than twice as many years of practice and his quarter of a century's connection with the veterinary school, it was equally strange and puzzling. He confirmed the gravity of my prognosis, by saying, " Ellis, this horse will die of this thing before long, and then we will know something about it." He then suggested that I send the horse down to the college, which I finally induced the owner to do on the 17th, being Friday.

On Monday, the 20th, I was called up on the telephone, from the college office, and told that Dr. Coates desired to know whether I would permit an operation to be performed upon the horse, which had been entered there as my patient, and which he stated was in a critical condition ; colicy pains having set in that day, and he would probably die. It was explained further, that the operation in view was largely experimental, and done as a last resort ; it having been suggested by H. Taylor Cronk, M. D., an instructor in both the medical and veterinary schools of the New York University. I gave my consent, and requested that they notify members of the college faculty and such practitioners as they thought might like to be present. The time was set for 9 o'clock that night, and there were present Drs. Coates (chief surgeon of the College Hospital), Ryder, Bell, Robertson, Dickson and myself, as well as the students of the college.

The horse was very much emaciated since the last time that I had seen him, which was on the 5th, two days before his removal to the hospital. He was placed upon a table, and after being anæsthetized by Dr. Coates, Dr. Cronk made a transverse incision in the region of the left kidney, through which he passed his hand forward in the direction of the head, and came in contact with a large tumor; so large that he could not outline it entirely through the incision made, and invited inspection and manipulation of it by those present before proceeding further. After this opportunity had been availed of by the practitioners and students, it was agreed by the practitioners that the tumor could not be removed with the hope of saving the horse, so far did it extend forward under the ribs, and his destruction, to be followed by a post-mortem, was decided upon. The horse was pithed, after which two or three ribs were removed, and a tumor weighing approximately forty-five to fifty pounds and measuring four and a half to five feet in circumference, involving and embracing the kidney, was revealed, which was soon removed, together with the kidney and the spleen. Dr. Cronk then split the kidney and found in its pelvis three calculi, one the size of a hen's egg and two slightly smaller. While making this exploration of the pelvis of the kidney, the doctor's scalpel passed accidentally through it, into the cavity of the tumor, and half a gallon of most fœtid pus escaped (unfortunately the doctor did not escape the pus). The cavity of the tumor was then washed out and the tumor, together with the kidney and spleen, were placed upon the roof of the college building for safe keeping and cold storage until morning, when I took the photograph which accompanies this report in the college pharmacy. The tumor was then sent, at Dr. Cronk's request, to Dr. Edward K. Dunham, Dept. of Pathology, Med. Dept. of New York University, and following is Dr. Dunham's report to Dr. Cronk :

NEW YORK UNIVERSITY.
THE UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE.
DEPARTMENT OF PATHOLOGY.
Carnegie Laboratory, 338 East 26th Street, New York City.

NEW YORK, January 6, 1900.

Dear Dr. Cronk :

Microscopical examinations have been made of (*a*) the kidney and renal pelvis, (*b*) the walls of the adjacent pus cavity, constituting the specimen from a horse received from you on Nov. 21, 1899. Chemical examination of the concretions contained in the pus cavity was also made, showing that they consisted almost entirely of calcium carbonate.

Renal Pelvis—Œdema of pelvic wall, without evidence of marked inflammation—epithelial lining of pelvis intact, save for slight swelling of epithelial cells (possibly post-mortem). A little blood and pus, with a few, desquamated epithelial cells, were lying in the pelvis. These may have come to lie there as the result of opening the renal pelvis at the same time that the pus cavity was opened.

Kidney—Marked congestion ; hæmorrhage into renal tubules, degeneration and desquamation of renal epithelium in some of the tubules. A little pus and cellular detritus in a few of the collecting tubules. In a few places diplococci and short threads of streptococci were present in these tubules.

Wall of Abscess Cavity.—Œdema, purulent infiltration and occasional extravasation of blood into the fibrous tissue bounding cavity. Cavity filled with pus containing a little fibrin. In the abscess walls a few collections of small streptococci forming long chains were found. There were no evidences of tuberculosis. The purulent infiltration had, in places, extended into the adjacent renal tissue.

These results point, in my opinion, to a perinephritic abscess, extending into the kidney and occasioning a hæmorrhagic nephritis. It is not unlikely that the more acute manifestations are due to a recent infection with streptococci and that previous to that infection there was an abscess of long standing—due to some cause that cannot now be stated—and that the concretions were formed a considerable time before the infection of recent date. Yours truly, EDWARD K. DUNHAM.

Now, in conclusion, just a few words as to the possible origin of this condition. I stated in the beginning of this report that this animal was what we call a " mustang " for want of a more proper name. In other words, he was a horse raised wild upon the plains in a drove; his only acquaintance with man, prior to being "rounded up" and shipped East to sell, being the time that he was branded with a red-hot iron; hence his wild, terrified condition on arriving in civilization, where scores of men could come and look over the enclosure in which he was confined. I have seen many carloads of these animals sold in the upper part of Manhattan Island, and the handling is extremely rough. The animal to be auctioned off is driven from the main enclosure into a smaller one alone (or with one or two others that escape there with him), where he is sold under the hammer, and then allowed to pass out of this smaller enclosure into a narrow one just wide enough to receive him. Here he is roped about the neck and allowed to escape, but brought up as soon as he reaches the length of his rope. Now a "cowboy" proceeds to place a halter on the frightened creature's head for the purchaser, which is accomplished by approaching him cautiously along the rope, the further end being wrapped around a tree or post to prevent his pulling back. As the "cowboy" approaches with the halter the mustang sets himself against the restraining rope and throws himself violently to the ground in all sorts of positions; the rope about his neck in the meantime tightening, until at last, "choked down," as they term it, he is approached and the halter placed upon his head. During this process and the subsequent removal of these animals from the field, I have frequently seen them lose their balance and fall upon their back violently. It was, therefore, that I suggested to the owner of this horse that the trouble might be due to an injury received at that time, or during the subsequent breaking to harness, and this seems to be substantiated in Dr. Dunham's findings and might serve as a useful guidance to us in making diagnoses in this class of horses.

PARTURIENT PARESIS.

By A. H. Hartwig, M. D. C., Watertown, Wis.

Read before the Meeting of the Wisconsin Society of Veterinary Graduates.

Since our last meeting, which was held at Madison, at which

I was requested to take up the subject of parturient apoplexy, or, as it has been recently termed, parturient paresis, I have watched with greater interest than ever the various theories advanced as to the pathology and therapeutical treatment of this disease.

Among the most popular of the day is that of J. Schmidt, but as we really do not know the true cause of this disease, the Schmidt theory would first appear as an empirical one. Though a little sceptical on this account, and of previous disappointments, I have concluded to give it a trial, and thus report the following cases :

No 1 (*Fatal*).—I was called to a five-year-old Durham cow, which was in fair flesh but a good milker. I found her in her stall at 4 P. M. She was lying on her sternum and not entirely inattentive to her surroundings, and would partake of food occasionally. I was informed that she gave birth to a calf the previous day. She would attempt to rise, but was unable. After a formal examination, I concluded that she had a mild attack of parturient paresis, and at once applied the potassium iodide infusion according to directions. Relieving her of the contents of the rectum, which was apparently normal, and placing her in a comfortable position, I left, giving orders to apply massage. On my arrival the next morning I found she was much worse, her neck arched to one side, and she groaned terribly. I concluded to repeat the dose, which I did, but not quite as strong a solution. I returned about six hours later, but saw no improvement. I then injected stimulants hypodermically, and asked the owner to report in the morning, when about eight o'clock he arrived with the hide, stating that she had died during the night.

No. 2 (*Recovered*).—This was an eight-year-old cow of native stock. I was called at ten o'clock in the evening and found her in a basement barn with her head turned to one side and occasionally stretching out all four limbs and groaning. She was entirely unconscious ; temperature 98½ degrees. Though the weather was warm her skin was cold and shriveled, her mouth was cold and the tongue paralyzed, the eyes were dim and when touched with the finger she would not attempt to close them. When examining the udder, I found a slight swelling in one quarter. Upon inquiring how long since the cow had come in, I was informed that her calf was eight weeks old, which was shown to me. I could not doubt the man's word, as I really believe he was sincere in his statement. You can imagine my astonishment to see typical symptoms of parturient paresis eight weeks after parturition. Not trusting my first conclusion, I again made a thorough examination with the same results. On account of the existing symptoms of mastitis, I was not warranted to apply the potassium iodide infusion and advised to apply friction to the exterior by means of straw wisps, which was done; also stimulating agents were applied both externally and internally, and the patient wrapped in warm blankets; the udder was frequently immersed in hot water during the night; also light massage was applied and the udder relieved of its contents as often as possible. On my arrival the next morning, my patient was resting easy and appeared much brighter. The next day she got up, and has ever since made a slow recovery, and is now giving a normal flow of milk. I am not surprised at her recovery, but have never heard of such a case eight weeks after parturition, and therefore bring it to your notice for discussion.

No. 3 (*Recovered*).—This was a very fat, shorthorn cow, six years old, had aborted the previous season and was dry for six months prior to her period of gestation. The first symptoms of the disease were noticed about eight hours before my arrival at the place, and she was suffering with a very severe attack. I informed the owner that the case was hopeless in my opinion, but was willing to try and help her as best I could. One hundred and fifty grains of the potassium iodide was dissolved and infused according to directions, massage applied, but no caffeine or other stimulants. This was twelve o'clock at night. I returned to the place at nine o'clock the next morning, and was informed that the cow was up. Upon reaching the stable I found her standing at her manger eating, and occasionally bellowing for her calf. She soon regained her flow of milk, and is again at the head of the herd.

No. 4 (*Recovered*).—Was a six-year-old red cow, not very fat, with a mild attack. I was called two hours after its first appearance. Potassium iodide was administered as before; no stimulants. The animal made a nice recovery and was up in six hours.

No. 5 (*Recovered*).—A medium sized, well-fed cow, seven years old, with an attack of medium severity; treated with the potassium iodide; no stimulants; was up after twelve hours. Did not regain her regular flow of milk until several weeks later.

No. 6 (*Fatal*).—An eight-year-old cow in fair condition, not fat, but a good milker, was found in a pasture eighteen hours after the first symptoms were manifest; was completely paralyzed; her general appearance resembled that of a corpse; skin and extremities very cold; eyes wide open; head and legs stretched from her. She was not able to stir, but would utter loud, painful groans. She was brought into shelter, where we made her as comfortable as possible. Potassium iodide with mild stimulants were applied. After six hours she was resting easier, which was late at night. Upon my arrival the next morning, I found her in an orchard near by, picking an occasional mouthful of grass, but was very weak. The stimulants were kept up for several days and she was doing nicely. When calling four days after she had a normal appetite and appeared well, but had no milk. This remained the same until the seventh day, when she stopped eating and drinking, and died several hours after. I had no opportunity for an autopsy.

No. 7 (*Recovered*).—A very fat Holstein cow, seven years old. I was called five hours after the trouble began. The attack was quite a severe one. Potassium iodide infused; no stimulants. The patient was up in nine hours and made a rapid recovery.

In view of the above facts we must conclude that the potassium iodide treatment is a vast improvement over previous results, and with careful observations and experiments we can no doubt improve on it. I will add that in case No 1, the massage was not applied regularly as directed, which might have made some difference in the termination of the case. I have also observed that thorough cleanliness and sterilization of the infusion apparatus must be maintained. Care should also be taken that the water used is pure and thoroughly sterilized in a clean vessel, as our clients are mostly farmers, who are not, as a rule, very particular in this respect.

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
of the McKillip Veterinary College, Chicago, Ill.

ANTISEPTIC WOUND TREATMENT (CONCLUDED).

Routine of Wound Treatment (*Concluded*).

Suturing Wounds.—Suturing the wound is the last step but one in its treatment. After the stitching is completed the whole procedure is perfected by the application of the final dressing, which is intended to prevent infection during the healing. There are other methods of closing wounds besides suturing (plasters and bandages), but none other is entirely practical in veterinary patients. Neither plasters nor bandages can ever be of much service where the parts are not perfectly quiet, and since it is not possible to induce absolute quiet in our subjects these methods might well be excluded from a discussion of veterinary wound treatment.

Silk, cat-gut, wire, cotton twine, kangaroo tendon and flax thread are the materials at one's disposal. Among the more delicate operations each may have its special indication, but in general practice none will be found to be more useful from every standpoint than Barber's Irish flax saddler's thread. This thread is stronger in single strands than any of the ordinary suturing threads and when used in double, triple or quadruple strands it will answer for suturing the very largest wounds. Another commendable feature is its small cost. One ball costing less than fifty cents should last the average veterinarian a year or more. The silk skeins are actually too costly for the veterinarian.

As sutures come in such close contact with the wound it is hardly necessary to reiterate that they should be possessed of absolute purity. It is not sufficient to soak them in antiseptics for a few minutes just before inserting them. Any experienced surgeon will vouch for the dangerousness of such a procedure. Stitches are such dangerous infection carriers and are imbedded on such a fertile media for pyogenic organisms that they should be cautiously disinfected. The veterinarian cannot well afford to purchase the safe aseptic stitching materials made up for the human surgeon, but may keep a small quantity on hand for special occasions; for example, in making an intestinal anastomosis. But for the ordinary indication a good method of keeping sutures is to wrap a quantity of the flax thread above mentioned on an iron bobbin and drop it into a small salt mouth bottle filled with formalin, 95 per cent. carbolic or 1 per cent. mercuric chlorid and keeping the end from falling into the bottle with the cork. In this way a large quantity of safe suturing thread is always on hand, and can be carried conveniently. After several months in such a solution the thread may decompose and lose some of its strength, but as the cost is so small that can be no great objection, in view of the fact that it is both an economical and practical method of preventing stitch suppuration.

The reader must refer to works on surgery for a description of the various kinds of sutures. Here we can only refer to suggestions on their application so far as they concern the healing of the wound.

The edges of a wound to be sutured must always be closely clipped or shaved. The needle should always be passed from within outward and never from without inward if absolute asepsis is demanded. It has already been said and repeated that perfect asepsis of the skin is impossible as even the deep layers harbor dangerous organisms. Therefore the needle that passes from without inward may carry organisms into the recesses of the wound. To sew from within outward conveniently the thread is armed at each end to obviate rethreading after each insertion of the needle. In inserting interrupted sutures —the usual kind—all of the sutures are inserted before any one is tied, so that just before finally closing the wound it—stitches and all—can again be immersed with antiseptics to destroy any infection that may have been carried into the wound during the sewing.

The edges of a wound must be brought into perfect apposition and with as little tension upon the threads as possible. The skin of a wound that is a few hours old always curls inward and unless some care is exercised in stitching they will remain so after the stitches are tied. Bad healing, bursting of the stitches, etc., are often traceable to this cause. When a wound is swollen or is so located that it will require some force to bring the edges together the stitches must be inserted farther from the margin of the wound and must be placed deeper so that there will be enough tissue included to retain its vitality against the strangulating effect of the threads. In simple incised wounds of the skin one centimeter from the edge is sufficient, while in larger ones from two to four centimeters is none too far. As regards the depth of sutures it should vary from merely through the skin in simple wounds to the very depth of the deeper ones if deemed necessary to keep the walls in apposition until adhesion has taken place.

Where there has been no great amount of new tissue to form the sixth or seventh day will find the wound well healed, so the sutures might as well be removed. In the case of more extensive traumata, even if the edges have failed to adhere, their removal is advisable on the sixth or seventh day, for at this time they will be found too septic, or at least too suspicious, to warrant their further retention.

Protection Against Infection During Healing.—This step of wound treatment has been discussed in detail in the February and March numbers under the head of "*Occlusive Dressings*," so that little remains to be said. The difficulty of perfectly executing this step in domestic animal surgery has already been mentioned and repeated, yet in spite of the difficulty, veterinary wounds need never be left entirely unprotected. There is always a way, even if the covering is not absolutely occlusive. Fabric bandages are all that may be desired as far as the extremities are concerned, while dry antiseptic powders repeatedly applied, and viscid, sticky substances for wounds of the trunk will frequently give satisfaction. The principle that must never be lost sight of is to make the dressing as perfectly protective as possible without interfering with the drainage. A fabric dressing should be porous enough to promptly absorb the wound secretions if applied to a wound that will secrete much, while on the other hand, if little or no secretion is expected, it should be made perfectly occlusive. The same precaution must be taken in wounds that are protected with plasters. A simple one that will secrete but little may be entirely covered with collodion or other similar substances and left to work out its own salvation without further attention, while the one that will exude freely must, in addition, be provided with an opening which is then protected by some kind of antiseptic wadding.

After Treatment of Wounds.—The wound that is protected with only a sticky plaster or a dry antiseptic powder needs daily attention. The covering must be repaired as fast as it cracks or falls off, and if there is a drainage wad it should be removed and replaced at least once a day, and the trauma cavity might at the same time be irrigated.

Wounds dressed with bandages are, however, different. The one that is not expected to secrete a great deal should be left unmolested until the seventh day, at which time healing will have advanced to a safe point. The only reasons for changing such a dressing before the sixth or seventh day are :

1. If there is evidence of failure, manifested by undue pain, swelling, bad odor, or undue secretion.

2. If the bandage became soaked with blood at the time of application, in which case it should be removed in twelve to twenty-four hours.

3. If the bandage becomes disturbed accidentally.

When fabrics are applied to absorb secretions as well as for protection they should be changed every twenty to forty-eight hours. It is often said that such bandages might well be left unmolested until the wound secretion appears at the surface, but the statement will not "hold water" in veterinary practice, however safe it is in human surgery. The skin surrounding the wound, no matter how carefully disinfected, is never strictly aseptic, and the organisms lurking therein find an exceptionally fine media to propagate and to guide them into the wound. At each dressing the wound and surroundings are washed, sprinkled with a dry powder, and then a clean antiseptic bandage readjusted. Usually, after twelve days of such treatment the wound may be safely exposed, or at least it may be treated with less care.

Finally, when the trauma cavity is filled with granulations cicatrization may be hastened by the application of astringent remedies, but this is seldom necessary in the case of wounds that have remained aseptic throughout. Exuberant granulations are the product of septic wounds only, but when they do occur it is essential to prevent them from growing beyond the skin level in order to lessen the size of the cicatrix. Alum powder, tannic acid powder or any of the well known astringent lotions will usually serve the purpose. But when they fail actual cautery must be resorted to.

Aside from heat, boiling water and soap and water, which, in fact, are the most useful agents in antiseptic treatment, the following chemical substances are recommended as the most suitable antiseptics for veterinary purposes:

1. Mercuric chlorid solutions from 1% to 5%.
2. Iodoform.
   (*a*) Iodoform sugar 5%.
   (*b*) Iodoform ether 5% to 10%.
   (*c*) Iodoform tannin 5% to 50%.
3. Europhen.
4. Carbolic acid 1% to 10%.
5. Boric acid.
6. Chlorozone 20% to 100%.
7. Zinc chlorid 1% to 5%.

Epitome.

1. Antiseptic wound treatment was first practised by Sir Joseph Lister, an English surgeon, in 1867. The principles he advocated and practiced have not changed to this day, but the details of their application have changed with the advancement made in surgical pathology.

2. Antiseptic treatment is not practiced to the extent it should be in veterinary surgery, largely because (1) surgery has not been taught as it should have been in the veterinary colleges, (2) even the leading veterinarians have heretofore dismissed the subject as impractical if not impossible, and (3) because the veterinarian is still harboring the false impression that the remuneration for surgical operations does not warrant the bother.

3. Antiseptic treatment is both possible and practical in most surgical operations and under most circumstances. It is seldom impossible and impractical to be clean, and cleanliness is about 90% of the battle.

4. The advantages of clean surgery are:—(1) The healing is prompt and therefore the patient is at work much earlier. (2) Septic diseases are obviated and hence deaths are fewer. (3) Operations which would cause death by the old method can be safely performed. (4) It induces the exercise of greater care and hence enhances the skill of the surgeon. (5) Its general adoption will be an important factor in the evolution of the veterinary profession.

5. The disadvantages are:—(1) The time required to pre-

pare for and perform antiseptic operations. (2) The additional expense and the limited remuneration.

6. Advantages of the veterinarian over the human surgeon are:—(1) The veterinary patient is usually healthy. (2) The large per cent. of the operations are performed upon perfectly healthy tissues. (3) Septic organisms are less viable in the blood serum of animals. (4) The veterinarian seldom operates on patients of low vitality nor upon patients at the very brink of death. (5) Stronger antiseptics can be used on veterinary patients.

7. Advantages of the human surgeon over the veterinarian are:—(1) The human patient is intelligent and is therefore capable of nursing his own wounds. (2) The operating room can be made more clean. (3) The habitat of the human patient (usually) is cleaner. (4) The impossibility of keeping the veterinary patient absolutely quiet and the difficulty of applying satisfactory dressings.

8. Begin at once to fear the danger of touching wounds with any substance not aseptic. Act under the supposition that septic organisms are everywhere, and that when they once find their way into a trauma they are not readily destroyed. It is much better to keep a wound aseptic than to depend upon the possibility of making it so.

9. Remember that the air of an operating room or operating place if free from dust is quite safe enough to perform the usual operation. It is not necessary to spray the room nor the environs of the operation as was once supposed.

10. Wash the hands clean and immerse them frequently in a 1-500 mercuric chlorid solution, but never manipulate a wound with the hands unnecessarily. If a metal instrument will do the work, keep the hands off, for in many veterinary operations it is difficult to keep the hands pure.

11. Boil metal instruments repeatedly, and when wiping them do not use a dirty towel. Carry them in a metal case instead of the old-fashioned leather ones. When they are laid out for an operation see that they are not placed upon a dirty board. A pane of glass well cleansed, a sterilized towel or a tray containing a strong carbolic solution will answer. If you disregard this step better give up the whole affair at once.

12. Never wash an aseptic surgical wound with an antiseptic solution. It is not necessary, and even harmful, and, besides, the antiseptic solution may not be pure as the wound.

13. Sutures, bandages and wadding can be safely sterilized

with strong antiseptic solution, 5 per cent. to 1 per cent. mercuric chlorid being the best. Be exceedingly careful with the sutures, as they penetrate deeply into the wound and are hence more dangerous than the bandages and wadding.

14. Apply the protective coverings as perfectly as the conditions permit, but do not permit them to interfere with proper drainage, as it is quite impossible to keep a poorly drained wound aseptic.

15. Learn to regard the item—pus—as you would tetanus, following an operation. Both result from the same bad technique, and the surgeon who has tetanus follow has made no greater error than the one whose wounds discharge a purulent secretion. Remember that all wounds secrete, but when the secretion is purulent the surgeon's methods are faulty. Do not, however, mistake the whitish secretion of granulating surfaces for the pus of pyogenic cocci.

16. By all means practice antiseptic treatment.

(*The end.*)

SURGICAL ITEMS.

"*Preparation*," "*Performance*," and "*After-Treatment*" are the three major divisions of all surgical operations. No matter how simple the operation is the veterinary surgeon can no longer afford to risk his professional reputation by making even the slightest error in *any* one of these steps. Intelligent and methodical execution of each step means good surgery, while slip-shod methods will always savor of incompetence and empiricism.—(*L. A. M.*)

The large majority of writers, both European and American, on chloroformization, elaborate specially upon the time it requires to bring a horse to the surgical stage of anæsthesia with chloroform. The required time usually given is from 15 to 40 minutes. The shortest time recorded by Moller is 7 minutes in a 4-year-old horse with 35 grams of chloroform, while the average among 126 patients, stallions, geldings and mares of all ages, is from 18 to 22 minutes. These statements seem remarkable to me in view of the fact that I have never yet failed to bring a horse to the profound stage of anæsthesia in less than 3 minutes, and in many instances in 30 seconds. As the discrepancy in time is of course due to the different methods of administration, the question naturally arises, whether the "*slow*" method has so much advantage over the "*rapid*" as to warrant the loss of so much time, or in other words "is the slow method the safest." There are of course occasional deaths from chloroforming domestic animals, but in the horse they should be few and far between, no difference what the method of administration is. The horse that is subjected to operative treatment is in 99% of cases in good general health; organic diseases of the heart are rare; he responds to a comparatively small amount of chloroform, he never has that "narcotized condition" of the nervous system caused by alcohol, morphia and other narcotics which in the human make chloroformization both difficult and dangerous, and finally the veterinary surgical operations are of relative short duration. With all of these advantages in our favor the dangers are indeed scarcely worth mentioning; so, therefore, to labor over a patient 20 to 40 minutes is taking an unnecessary precaution.—(*L. A. M.*)

"The teaching of practical surgery requires, in addition to the needed amount of lectures, such laboratory work as will best fit the student to discharge his duties as a learned member of his community. . . . A certificate of graduation from a veterinary school should at the present day be logically regarded as including a practical knowledge of surgery, and the school which fails to impart it robs the student, insults modern education, and degrades veterinary science. . . . We hope that the near future will see a thorough awakening in the methods of teaching animal surgery, resulting in better technique, better results and very much higher attainments in the profession at large."—(*Prof. Williams in the March* REVIEW.)

Commenting on the probable curative value of antistreptococci serum in the March REVIEW, Prof. Moore quotes the following from the report of a committee appointed by the American Gynæcological Society to investigate the subject: "Experimental work has cast grave doubts upon the efficiency of antistreptococci serum in clinical work by showing that a serum which was obtained from a given streptococcus may protect an animal from that organism, but may be absolutely inefficient against another streptococcus and that the number of serums which may be prepared is limited only by the number and varieties of streptococci which may exist." To this he adds: "The committee found nothing in the literature or in their own experience to indicate that its employment will materially improve general results in the treatment of streptococcus puerpural infections. If this be true in human medicine where, as I have already stated, there is a better knowledge of the action of the streptococci, how can we expect better results from similar methods in veterinary medicine? Our own experiments suggest further, that the procuring of a serum of recognizable value from any virulent streptococcus is not in all cases, even experimentally, easily accomplished. It seems just, both to the bacteriologist and to the practitioner, that the investigations should be continued until we are in possession of more definite and trustworthy results concerning the action of the serums prepared from the different streptococci on the diseases produced by the same species, before veterinarians become too eager to risk their reputation or money of their clients in a general and unscientific application of these expensive remedies. The accumulated evidence at the present time points (1) to the probable high efficiency of certain antistreptococcic serums against the diseases produced by the same streptococcus, and (2) that these serums are likely to have little or no value in diseases caused by other streptococci or other genera of bacteria."—(*L. A. M.*)

EXTRACTS FROM EXCHANGES.

FRENCH REVIEW.

Complete Œsophageal Obstruction by an Œgagropile [*By M. Misier*].—This is a rare case. A cow presented all the symptoms of œsophageal obstruction—tympanites, ptyalism, inability to eat or drink. After puncture of the rumen and failing to discover anything in the œsophageal groove, the author introduced a probang and felt a foreign body in the thoracic portion of the œsophagus, about 10 centimetres from the cardiac end. Unable to dislodge it unless great force be used, the owner, after giving his consent to resort to it, refused to have it done, and the cow died on the fourth day. At the post-mortem an œgagropile measuring 7 centimetres in diameter was found imbedded in the œsophagus, which it had considerably dilated.—(*Rec. de Med. Vet.*)

Congenital Inguinal Hernia in a Two-year-old Colt — Bayer's Dressing—Recovery [*By E. Marx*].—This subject has a hernia as big as a child's head, which has resisted all kinds of treatment—bandages, blisters, clamps, etc. As the animal was becoming unfit for work, the operation was decided upon as a last resort. The classic operation was performed, and after suture of the ring, abdominal wall and the skin, made with all antiseptic measures to obtain cicatrization by first intention, the dressing of Bayer, described in the "Exercises of Equine Surgery" of Prof. Cadiot, was applied. During the fifteen days following the operation, the patient presented no alarming symptoms. After that time the dressing was removed and the wound appeared entirely cicatrized. The conclusions of the author are that surgical interference is after all the best mode of treatment for umbilical hernia, that it deserves entrance in ordinary practice, and that the dressing of Bayer must take the place of all circular bandages or any other applications which are less solid.—(*Rec. de Med. Vet.*)

A SUSPICIOUS CASE OF INOCULATION OF GREASE TO A ROOSTER [*By M. Biot*].—The case is very curious, and probably unique in scientific records. While making the post-mortem of a cow killed for pleuro-pneumonia, the author had his attention called to the case of a rooster which was sick with a disease, which, according to the owner, he had caught from a horse, which himself was suffering with grease of both hind legs. The rooster had lost all his flesh in about two weeks. In one of the interdigital spaces there was an ugly granulating wound, from which exuded a sticky, viscous fluid, having an ammoniacal odor analogous to that of grease in horses. The affection was not localized to the claw, and had a character of generalization: The eyes and nasal openings were discharging fully a fluid analogous to that of the claw in consistency, color and characteristic odor of the discharge of grease. However, the animal could eat with great appetite. He constantly remained lying with his head under the wing in such a way that his feathers were glued together by the dischage of his eyes and nostrils, and had a very offensive odor. The inoculation had taken place by the foot of the horse stepping on the claw of the bird.—(*Rec. de Med. Vet.*)

COLLECTION IN THE MAXILLARY SINUSES OF THE COW [*By Mr. J. N. Pries*].—After remarking that he has failed to discover this affection described anywhere, the author relates two cases of that affection. In the first he failed to establish the diagnosis, in the second post-mortem confirmed it. The symptoms he observed in the first case were: At first snorting followed by a species of coughing, with discharge of a mass as big as a hen's egg, formed of a fibrinous substance, odorless and reddish. The eyes are dull, crying, with discharge adherent to the cheeks. Transparent, viscous, yellow reddish discharge, sometimes mixed with gelatiniform clots and streaked with blood, escapes from the nostrils. There is some roaring. The bony walls of the sinuses are normal and not painful to percussion; no swelling of the glands. The general condition remains good, appetite and rumination normal. The author considers that the diagnosis in the first case might have been made by exclusion. In the second there was no doubt about it. At the post-mortem of the animal the maxillary sinuses were found the seat of disease, the right being more affected than the left.—(*Rec. de Med. Vet.*)

CONGENITAL DIAPHRAGMATIC HERNIA IN SWINE [*By Mr. T. Biot*].—Out of a litter of nine pigs, four had died suddenly in the space of two days, presenting symptoms entirely identical. They died in full condition of health after a copious meal. The other five exhibited all the external signs of perfect health. At the post-mortem of the last that had died, the abdominal cavity was found separated from the diaphragm, but this muscle was perforated in the left side of the superior portion with an elliptical opening allowing only the introduction of the index finger. In the abdomen there was only two-thirds of the small intestines, the balance of the intestinal canal, the kidneys and the genito-urinary organs. In the thorax, there was but one lung, the right was resting on the internal face of the ribs and adherent to it; it consisted in a sheet of spongy congested tissue about one and a half centimetres thick and resembling the lungs of fowls. The four-fifths of the thoracic cavity were occupied by a normal heart, the stomach filled with food, the pancreas, liver and duodenum engaged in the diaphragmatic opening. It is probable, not to say certain, that a similar condition existed in the three other dead pigs.—(*Rec. de Med. Vet.*)

HERNIA OF THE BLADDER THROUGH THE URETHRA IN A COW [*By M. Villemin*].—While attending a cow in labor, the author observed in the vagina a reddish bosselated tumor as big as the fist, moist and attached to the vagina by a short peduncle about the size of the little finger. On each side of this tumor there were two openings from which drop by drop escaped a fluid smelling like urine; there was no urinary meatus. It was evidently the bladder which had everted through the expulsive efforts of the cow. The uterine torsion, which prevented the cow from delivering, having been reduced, the calf was extracted. Reduction of the vesical hernia was accomplished only the next day, but with great difficulty. The animal suffered afterwards from purulent cystitis, but ultimately recovered.

To the author the case is interesting, as he believes it the first on record of such accident in cows—at least the French authors say that it had been observed only in mares.—(*Journ. de Zootechnie.*)

REVIEW OF BIOLOGY.

A CASE OF PARASITISM IN THE HORSE, THE LEPTOTENA CERVI [*By M. Meguin*].—Every one who uses horses in the country knows the flat or spider fly (*Hippobosca equina L.*). It flies little except to go from one animal to another, but walks very fast on the body of the horse, moving obliquely or sideways as crabs do; it prefers the regions where the skin is thin, covered with few hairs, such as the perineum or under the tail. When it reaches these spots, it irritates the horse, especially those that are nervous, and makes them act violently to get rid of their presence. Lymphatic animals pay little attention to them. In one horse which presented symptoms of irritation analogous to those produced by the hippoboscus, the author found an ordinary parasite of deer, the *Leptotena cervi.* The horse had been infected in a wood where that game is plenty. This is the first case observed in the horse.—(*Soc. of Biology.*)

UPON THE PATHOGENOUS AGENT OF RABIES [*By M. Puscarin*].—In a series of researches made by the author upon the nervous lesions of rabies, the author has always found special formations which he has no doubt are of a parasitic nature and which he considers as the pathogenous agent of rabies. In 21 cases examined, the constant presence of globular formations of various size, described as amylaceous bodies (Meynerl, Schaffer, Bobes, Kolesnikoff), their great number, special form, sometimes radiated, has for a long time attracted his attention and made him suspect that an intimate connection might exist between them and the cause of rabies. The parasitic character of the formation, their constant presence in the central nervous system, leave to him no doubt as to their being the pathogenous agent of rabies. It remains now to find the means to make cultures of this parasite and confirm his belief by experimental proofs.—(*Soc. of Biology.*)

BACTERICIDE ACTION OF EXTRACT OF TÆNIA INERMIS [*By MM. Picou and Raymond*].—If carriers of tænias inermis exhibit some well known troubles by their presence, they seem also to derive some benefit from them. Indeed, they rarely suffer with infectious diarrhœas, typhoid fever; besides, it has been thought that tuberculosis, at least the intestinal form, was rare with them. Some pathologists have confirmed this clinical fact. Recently Prof. Wurtz has reported that in Abyssinia they consider the presence of these parasites as a sign of health. It has appeared interesting to the authors, to experiment and find out if the tænia possesses bactericide properties toward various intestinal microbes, saprophytes or pathogenous. The result obtained so far is most curious and seems to confirm the clinical observation recorded before. Now, the authors are studying thc action of the extract of tænia inermis on the tuberculous bacillus; their researches are not completed yet, but they can already affirm that a maceration of tænia enjoys bactericide properties for the bacillus of Koch. Another communication will state the results obtained later on.—(*Soc. of Biology.*)

TREATMENT OF MALIGNANT PUSTULE BY CAUTERIZATION WITH SUBLIMATE [*By Dr. Caforio*].—The following method is used by the author: First, the pustule is isolated. To this effect, taking hold of a fold of skin, whose apex is formed by the pustule, two incisions crossing each other at right angles, involving the healthy skin only and passing through the infiltrated tissues as far as the healthy structure underneath them. Then in the wounds thus made 40 centigrams of pulverized sublimate are smeared over, carefully avoiding to put any round the seat of the lesion. Some pains result from this application, but they subside after four or five hours. A slough is then produced, which once eliminated leaves a healthy wound, which goes on rapidly towards cicatrization. If around the anthrax infiltration a hard swelling has developed, the author,besides the sublimate cauterization, makes around the œdematous parts hypodermic injections of a solution composed of: Sublimate 0.10 centigr., sterilized water 100 grams, chloride of sodium 1 gram. For mild cases 4 syringefuls are inoculated in one day, in severe cases 6 or even 8 in 24 hours. In 20 cases treated, the fever and delirium have subsided rapidly and recovery occurred in a few days. In none of the patients were toxic symptoms observed.—(*Semaine Medic.*)

COLLEGE COMMENCEMENTS.

M'KILLIP VETERINARY COLLEGE.

The fourth annual commencement of McKillip Veterinary

College was held in the College Auditorium, 1639 Wabash Ave., Chicago, Ill., on the evening of March 29, 1900, and the following programme presented: Invocation by Rev. Chas. Brodie; baccalaureate address by Dr. E. M. Reading; and class exercises consisting of a salutatory address by D. Clinton Burnett; class poem by A. A. Adamson; class prophecy by J. B. Hollenbeck; class history by James Ragen; valedictory address by J. P. O'Conner; followed by the Secretary's report and presentation of prizes; and the conferring of degrees and the presentation of diplomas by Pres. M. H. McKillip.

The following senior students received the degree of M. D. V., viz.: S. E. Huntsberger, Burton City, Ohio; J. C. Hayes, Chicago, Ill.; Robert E. Cochrane, Milwaukee, Wis.; H. James Elliott, Brandon, Manitoba; Thos. E. Newell, Chicago, Ill.; M. J. O'Donnell, St. Clair, Pa.; James Ragen, Verona, Ill.; John E. Sommers, Buffalo, N. Y.; J. W. Rutledge, McGregor, Manitoba; A. A. Adamson, Newton, Iowa; D. Clinton Burnett, Sharon, Pa.; J. B. Hollenbeck, Salem, Ohio; S. P. Smith, Corasallis, Ore.; C. P. Liegerot, Ruxburg, Idaho; H. F. Pegan, Cochranton, Pa.; A. G. Hopkins, Madison, Wis.; James Nicholson, Pipestone, Minn.; S. G. Burkholder, Denver, Pa.; L. A. Merillat, Chicago, Ill.

The class of practitioners consisted of fourteen veterinarians, nine of whom passed the required examination, viz.: W. L. West, V. S., Bangor, Me.; Burton R. Rogers, D. V. M., Ames, Iowa; F. D. Markham, V. S., Port Leyden, N. Y.; S. P. Smith, D. V. M.; C. P. Liegerot, D. V. M.; H. F. Pegan, V. S.; D. C. Burnett, V. S.; J. B. Hollenbeck, V. S.; T. Lambreicht, V. S.

The auditorium was appropriately decorated by the junior class with flags and bunting; the attendance was large, and in the history of the college the fourth annual commencement will be recalled as a memorable event.

ONTARIO VETERINARY COLLEGE.

The closing exercises of session of 1899-1900 were held March 29. Prof. Smith opened the meeting by a short address, and Prof. Duncan read the list of graduates and prize-winners. Prof. J. H. Reed, on behalf of President Wilson of the Ontario Veterinary Association, presented the gold medal for the best general examination to C. D. McGilvray, of Manitoba. Prof. Baker, of Toronto University, gave a short but interesting address on "The Horse in War." Mr. G. A. Shaw, president of the graduating class, then presented a fine picture of the class to Principal Smith, who responded feelingly to the indication of good feeling.

The following is a list of the graduates:

G. Harry Acres, Calgary, N. W. T.; Freeman J. Aldous, Fenelon Falls, Ont.; William P. Barnes, Brookline, Mass.; James A. Campbell, Bedford, England; W. E. Clemons, Grandville, Ohio; Henry Janes Daniels, North Adams, Mass.; Albert L. Deal, Wilmot, Ohio; John H. Dellenberger, Jun., Akron, Ohio; Dolph S. De Wolf, Grand Rapids, Mich.; Burt Kimball Dow, Cabot, Vermont; Frank E. Erwin, Fisher, Minn.; Joab Palmer Foster, Bangor, South Dakota; Robert Frame, Treherne, Man.; Joseph Freeman, Hull, England; Henry James Hagerty, Dubuque, Iowa; Charles A. Hamilton, Kingston Ont.; Oscar Hartnagl, Victoria, B. C.; L. Morey Holmes, New Orleans, La.; Lewis N. Jargo, Stoughton, Wis.; Henry N. Jeffries, Greensburg, Ind.; George L. Jermyn, Wiarton, Ont.; David S. Krull, Clarence Centre, N. Y.; Walter Keys Lewis, Anderson, South Carolina; Ernest E. Linton, Kingston, Jamaica, W. I.; James Lucas, Liverpool, England; Ashley T. Lyster, Richmond, Quebec; Milton P. McClellan, St. Thomas, Ont.; James McFadzean, Waldemar, Ont.; Charles D. McGilvray, Binscarth, Man.; John D. McLeod, Kincardine, Ont.; Charles H. McVeigh, Vars, Ont., Charles Henry Paquin, Barre, Mass.; Arthur C. Ramsay, Exeter, Ont.; R. S. Reece, St. Ann, Jamaica, W. I.; John Arthur Rennie, Stevenspoint, Wis.; Beale Atwood Robinson, Parsons, Kansas; William T. Rodgers, Toronto, Ont.; George A Shaw, Manchester, N. Y.; Edward J. Shirley, Watford, Ont.; A. Fraser Smith, Claude, Ont.; George O. Smith, Ligonier, Ind.; John McDonald Smith, Kingston, Ont.; Archibald H. Stewart, Dalesville, Ind.; H. R. Stewart, Toronto, Ont.; Jacob Van Hont, Heron, N. Y.; Stephen A. K. White, Ottawa, Ont.

GRAND RAPIDS VETERINARY COLLEGE.

The annual commencement exercises were held in the auditorium of the college building on Thursday, April 5, and a large number of the friends of the institution and of the students were present. The honorary degree of "doctor of veterinary science" was conferred upon Dr. W. W. Thorburn, Secretary of the Michigan State Board of Veterinary Examiners, in appreciation of his efforts in behalf of legislative interests, and a post graduate degree of D. V. S. upon Coleman Nockolds, V. S., M. D., a member of the faculty. The following is a list of the graduates: J. B. Weir, Smicksburg, Pa.; T. P. Pomeroy, Freeport, Mich.; A. E. McCall, Memphis, Mich.; F. O. N. Hovey, Coopersville, Mich.; and H. L. Hickok, Grand Rapids. Drs. Weir and Pomeroy received honorable reward for high attainments in their work; Hovey and McCall received honorable mention for second and third places. In the junior class C. E. Dornheim, Providence, R. I., took first; A. B. Warrener, Portsmouth, Ohio, second, and G. S. Thorp, third prize in anatomy. In medicine, B. F. Baldwin, first, C. E. Dornheim, second, and A. B. Warrener, third.

CORRESPONDENCE.

IODIDE OF POTASSIUM IN PARTURIENT PARESIS AND AZOTURIA.

Editors American Veterinary Review:

DEAR SIRS:—I have given the iodide of potassium treatment both for parturient paresis and azoturia with the greatest of success.

I have tried the Schmidt treatment in three or four cases, one in particular of which I wish to speak. A thoroughbred Jersey cow, six years old, was attacked within six hours after parturition, and was seven miles from my office. I was not home when telephoned to, and it was four hours after when I arrived. I immediately applied the above treatment, and in connection I gave ℥iv alcohol every two hours, at first, then once in four hours; also gave physic, linseed oil, one quart, turpentine, ℥ij, as recommended. Repeated the treatment in eight hours, and after that gave one or two doses before perfect recovery.

Have tried the potassium treatment on four cases of azoturia, one severe case of which I will speak. A six-year-old Hambletonian mare, weight 1000 lbs., had stood in barn several days; was hitched, and attacked before had been driven one-fourth mile. She was gotten back to barn and I was immediately sent for. Mare was in extreme suffering; could not move, and the perspiration was running down to floor in many streams. I at once gave potassium iodide, ℥ss, and applied hot cloths to loins, one part vinegar, 3 parts water. Two men began rubbing her with straw. In thirty minutes I could see convalescence, and after four hours I repeated the medicine. The next morning mare could walk well, ate well, but showed symptoms of congestion of lungs, but made a complete recovery.

Yours, W. N. BABCOCK, V. S.

GOOD SUCCESS WITH THE SCHMIDT TREATMENT.

MARYSVILLE, Cal., April 2, 1900.

Editors American Veterinary Review:

DEAR SIRS:—Schmidt's treatment for parturient apoplexy has given me most satisfactory results. Of 39 cases I've lost 2—the first a case which had been treated by several "cow doctors" for four days; the second, a large fat cow which had lain out in a filthy corral for two days, exposed to a broiling sun, with no possibility of getting her under cover. In one case I gave two injections of kali iodide, and next day 15 grammes of lysol, from which I got quite a general systemic disturbance, which was easily controlled.

Yours respectfully, A. S. WILLIAMS.

SOCIETY MEETINGS.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

Meeting called to order, Jan. 12, at 8 P. M. Mr. Horner was appointed critic. It was carried to have 200 copies of the by-laws printed. A vote of thanks was extended to Dr. Pearson and Mr. Gillingham for the books which they contributed to the library. Also a vote of thanks to the banquet committee for the faithful performance of their duties. Dr. Harger then gave a very interesting address on the subject of "Saline Transfusion." A vote of thanks was extended to Dr. Harger for this excellent address. The critic had no report to make. Adjourned at 9.30 P. M.

Meeting called to order, Jan. 26, at 8 P. M. Mr. Powell was appointed critic. The result of the election of officers was as follows: President, Mr. Cornman; Vice-President, Mr. Powell; Treasurer, Mr. Young. Executive Committee—Senior Class, Mr. Nolan; Junior Class, Mr. Walters, Mr. Watson; Freshman Class, Mr. Paget. Librarian, Mr. Bassler. We were next favored by an address by Dr. C. J. Marshall. The Treasurer's report was accepted. The critic's report was very favorable. Adjourned at 9.30 P. M.

Meeting called to order, Feb. 9, at 8 P. M. Mr. Tallman was appointed critic. Mr. Andress was proposed and duly elected to membership. Messrs. Young, Bassler and Glass were appointed a committee to interview our several professors concerning subscriptions for the purpose of purchasing books for the library. Mr. Horner then favored the meeting with a paper on "Swine Plague and Hog Cholera." Next in order was a debate: "*Resolved*, That no stallion should be used for public service excepting such as has been examined and approved by a board of experts, the board to include a veterinarian and the examination to cover conformation and soundness." Affirmative—Messrs. Young, Colton and Glass. Negative—Messrs. Nolan, Gilliland and McClintock. The judges (Messrs. Powell, Shore, and Zollinger) decided in favor of the negative side. A general debate followed and was spirited, many taking part, as did also Dr. Pearson and Dr. Flowers. The decision of the house was in favor of the negative side. A vote of thanks was extended to Drs. Pearson and Flowers for the part they took in the general debate.

The chair then appointed Mr. Shore and Mr. Glass on the Room Committee to fill the vacancies caused by the election to office of Messrs. Bassler and Paget. Mr. Hughes still serves as the member from the Senior Class. It was carried to have the several pictures for the reading room framed. A vote of thanks was extended to the following gentlemen for the books which they contributed to the library:—Drs. Jacob, Hoskins, Huidekoper and Mr. Mayer. The critic's report was very favorable. Adjourned at 10 P. M.

Meeting called to order, March 16, at 8 o'clock P. M. It was carried to dispense with the regular order of business. The meeting was favored by an excellent address on the "Hackney Horse," by Mr. E. W. Twaddell. A vote of thanks was extended to Mr. Twaddell for his interesting and instructive address. Dr. Blount also gave a brief outline of his experience on board a transport. Adjourned at 10 P. M.

HARRY E. BENDER, *Sec'y.*

CHICAGO VETERINARY SOCIETY.

On Monday evening, March 12th, the regular monthly meeting of the society was called to order in hall 912, Masonic Temple. President Hughes presided, and twenty-seven of the members were present, all of whom aided in bringing about a very entertaining and enjoyable evening.

Dr. E. L. Quitman presented the report of a special committee instructed to wait upon officials of the Telephone Co., and ascertain why veterinarians are not granted the same privileges that physicians are in the free use of public instruments. The Telephone Co. allows physicians free use of public telephones at the request of the storekeeper and as payment of the company to drugstore proprietors for the space occupied in the store.

Dr. James G. Fish presented the following paper on

"POST-MORTEM INSPECTION OF CATTLE."

"Instead of directing your attention to the post-mortem evidence of the presence of disease in cattle, I have concluded that it might benefit some here to be more fully informed as to the methods of conducting post-mortem examination now in use at the Union Stock Yards.

"In accordance with the plan I shall briefly outline a day's work in post-mortem.

"The killing force is divided so that each man has his own particular part of the work to perform.

"There will be one knocker, three shacklers, one to hang off, two headers, one sticker, two switchmen, one man dropping cattle, one to place cattle on the floor, five leg breakers, two foot skinners, six floor men to skin bellies, one brisket sawer, one belly washer, one man elevating cattle, one man skinning hocks, two rumpers, two shank scrubbers, one shank trimmer, one shank wiper, three fell beaters, two backers, one back washer, two gutters, three tail sawers, four splitters, one tail puller, four hide droppers, one neck splitter, forty-three men wiping and washing cattle before entering the coolers, sixty men doing all around work, *i. e.* stripping muscle from head, cleaning casings, etc.

"This force will kill 114 cattle per hour. All cattle before reaching the abattoir, undergo an ante-mortem inspection. When the animal has so far advanced as to reach the gutter, the inspector stands behind or a little to one side of him, and notes the contents of the abdomen, the thoracic cavity and the state of flesh of the animal.

"If everything is normal and the animal in good flesh he passes on to the next carcass, which is only a few feet away.

"If the conditions are not satisfactory he immediately places a tag of identification on each side of the carcass and a coupon on the internal organs, head and caul fat.

"They, with the carcass, are put to one side, in a place provided for the same, for future inspection at his leisure.

"As these cattle are killed at the rate of 114 per hour, some may think it impossible to give a fair and just inspection, but as a man who continually uses a knife becomes an artist at his particular branch of work, so does the inspector become an artist.

"By long practice and seeing so many healthy animals killed, he becomes expert in detecting the slightest deviation from normal.

"Some of you would, no doubt, be surprised at the quickness of a butcher to detect the slightest change from normal, still he may not know what the ailment is.

"When a carcass is finally passed on and condemned the inspector has it cut up into suitable pieces for tanking and goes with it to the tank and places a seal on top and bottom of the tank. Steam is then turned on for sufficient time to effectually destroy it for food products.

"It may be interesting to notice the number of cattle condemned in Chicago during the last six months and the diseases for which they were condemned, so I have prepared the following list that can be depended on as being approximately correct:

Disease.	Number.	Weight.
Pneumonia	23	11,215
Jaundice	1	492
Uræmia	1	600
Actinomycosis	115	55,932
Metritis	5	2,432
Bruised Carcasses	52	25,085
Leucæmia	1	400
Pleurisy	13	6,955
Dead in Pens	8	4,651
Malignant Tumors	2	1,034
Enteritis	6	3,126
Bruised Parts		9,116
Peritonitis	32	17,283
Emaciation	63	24,647
Peritoneal Abscesses	3	1,322
Gangrene	3	1,790
Hæmatodes	21	9,690
Cancer	11	4,246
Pyæmia	5	2,785
Septicæmia	3	1,768
Ascites	2	1,267
Pulmonary Abscess	2	1,075
Nephritis	1	400
Tuberculosis	668	331,887

"Making 1041 condemnations for the six months ending December 31st, 1899, of which 64.17 per cent. were for tuberculosis.

"Rather than describe any particular disease on the post-mortem evidence of it, I have depended on the discussion to develop the points of greatest interest, and will now pass on to consider a condition not infrequently encountered in cattle and the cause of much trouble to the inspector.

"I refer to emaciation, which Gould defines as 'loss of the fat and fullness of the flesh of the body.' My own idea of emaciation is that it is characterized by extreme poverty of the animal, simple atrophy in which the fat disappears from the subcutaneous adipose tissue, a diminution takes place in the size of the tissue elements, and the replacement of the once healthy tissue by drops or molecules of an oily nature. When much tissue is affected, the change can be readily distinguished with the naked eye, by the yellowish-white appearance of the carcass and by a diminution in consistency and elasticity. The largest percentage of emaciated cattle is found in cows formerly used for dairy purposes, that have probably had their milking capacity forced for four or five years. At the end of this period the flow of milk diminishes and soon the beast is turned out to grass, or put on a less nutritious diet, and although allowed to go dry, she seems to have lost the power of assimilating food for flesh or fat producing purposes. She becomes thinner each day, and at last is shipped for slaughter where it is sure to bring some sort of a price. The dairyman or any of his neighbors would not be guilty of killing any such animal for food for themselves or families, but he sends it where he thinks it will be overlooked in the great number that daily arrive at the various large markets.

"I have found it one of my most difficult tasks to condemn a cow for emaciation when there are no other symptoms of disease.

"The shipper or packer is rare who will gracefully acquiesce in condemnation for such a cause. The question is thus continually forced upon the inspector, 'What is the degree of emaciation that renders cattle unfit for human food?' Anything that will enable him to answer this question to his own and the public's satisfaction he will welcome as a boon, and the discussion that will to any extent develop this point will be of benefit not only to our society but to the whole population of this country, whose servants we are."

Dr. Fisk's paper was well discussed by all present, it being prolonged and very interesting.

Dr. A. C. Worms told how worthless he considered our

State Veterinary Law, denouncing it as a piece of legislation got up for the benefit of a few "grafters," which provoked an extended discussion. JAMES B. CLANCY, *Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order March 7, at 8.30 o'clock by President Robertson After roll-call, reading of minutes of previous meeting, etc., by the Secretary, and the report of Board of Censors had been heard through Chairman Clayton, a paper on "Docking"* was presented by Dr. Ryder. This paper, which was carefully prepared so as to touch upon all phases of the operation, was productive of a very animated and interesting discussion. A vote of thanks was offered the essayist from the association, through Dr. O'Shea, and seconded by Dr. Bell. Dr. O'Shea reported progress from the Legislative Committee. Dr. Bretherton, chairman of the Prosecuting Committee, had no report to offer at this time, but desired a communication to be read by the Secretary, relative to an advertisement from a Brooklyn non-graduate. After the reading, the President directed the matter to be referred to the Brooklyn member of the Prosecuting Committee, Dr. Goubeaud. Dr. Bell, Chairman of Ways and Means Committee, reported a paper for April meeting by Dr. Hanson. Moved and seconded that the reports of the several committees be accepted. Carried. Moved and seconded that the meeting adjourn. Carried.

The meeting was called to order April 11 at the usual hour in the lecture room of the New York-American Veterinary College, President Robertson presiding. Following the usual business proceedings of the association, Dr. H. D. Hanson gave an extemporaneous discourse, upon "What Constitutes a Spavin in an Examination for Soundness." The doctor stated that his principal object in offering his remarks upon this subject was to provoke a discussion, and in this he was decidedly successful, this practical everyday subject seeming to appeal to every one present. Dr. Delaney, the association wit, stated that some man from Jersey had a few days previously found a horse in one of our New York horse marts with three spavins on one leg. Professor Schwarzkopf asked whether saddle horses were more subject to spavin than driving horses. The essayist stated that his practice brought him in contact with too few saddle horses to be able to draw a conclusion. Dr. Ackerman stated in reply to Professor Scharzkopf's question, that his connection for a number of years with a riding academy, as its veterinarian, had taught him that this condition was not prevalent among that class of horses, he having treated but very few cases of spavin in the academy.

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* Published in April REVIEW.

Legislative Committee, Dr. Shea, Chairman, reported that his committee would be unable to report until legislature adjourns, but at the instigation of Professor Schwarzkopf offered the following resolution to be sent to Senators Platt and Depew, Washington, D. C.:

> WHEREAS, the United States is the only civilized government in the world whose army has no veterinary corps or properly equipped veterinarians for the care of its public animals, and for the inspection of meat consumed by its soldiers;
>
> Therefore: We, the Veterinary Medical Association of New York County, do most respectfully ask you, our representatives in the Senate, to request the Secretary of War and your colleagues in the Senate to establish a veterinary corps in the U. S. Army worthy of our great country.

The above to be signed by the President and Secretary of the association, sealed with the association's seal, and forwarded to Senators Platt and Depew.

The Committee on Prosecution having nothing further to report, President Robertson reported in the absence of the Ways and Means Committee that Dr. Lellman would present some specimens at the May meeting. Moved and seconded that the meeting adjourn. ROBERT W. ELLIS, D. V. S., *Secretary.*

WESTCHESTER COUNTY VETERINARY MEDICAL ASSOCIATION.

The society held a special meeting in Music Hall, Yonkers, on Tuesday evening, March 27th, to which were invited the various boards of health throughout the county, the medical profession and the public in general.

The object of the meeting was to lay before the boards of health and the public the necessity of a system of milk and meat inspection throughout Westchester County, also the many reasons why a qualified veterinarian should be employed by each board of health in the county. A very nice audience of about five hundred were present and took great interest in the subjects. Martin J. Tewey, D. V. S., president of the society, opened the meeting with an address of welcome to the audience, and stated the object of the meeting.

Charles H. Martin, D. V. S., then read a paper entitled "Milk as a Factor in the Causation of Disease," and was followed by Prof. E. A. A. Grange, M. D., V. S., who made a very good address, entitled "The Relation of Tuberculosis in Animals to Consumption in Man," and certainly did justice to the subject.

Dr. Rowland G. Freeman, M. D., then gave a very interesting address, entitled "The Importance of Expert Direction of Dairies for the Production of Clean and Safe Milk." His address was illustrated by a large number of very interesting lantern slides, making a very novel feature of the evening.

Prof. Charles A. Doremus, Ph. D., M. D., then came forward and looked after the good of the veterinarians and his former pupils with a grand, good address, entitled "The Relation of the Veterinarian to Inspection of the Milk Supply."

The Hon. James Wood, of Mount Kisco, took up the subjects from the farmer's standpoint, and certainly handled them to perfection, making an exceedingly good address.

Prof. Edward F. Brush, M. D., then read a paper entitled "Tuberculosis and Tuberculin in the Dairy," which concluded the program of the evening. Whereupon the speakers of the evening and the members of the society adjourned to the Hotel Wynnstay to partake of a lunch that had been prepared for the occasion.

Upon the whole the meeting was a grand success, and the public as well as the veterinary profession will undoubtedly be benefitted by it in the near future.

I regret that I am unable to send the verbatim speeches of the different speakers, as they were certainly very good and right to the point. W. B. MOOREHOUSE, D.V.S., *Secretary.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

As arrangements are developing for the approaching meeting at Detroit the wisdom of the Executive Committee in selecting that city as the scene of the next great national gathering of veterinarians is becoming apparent to the most casual observer of the trend of events. The prospect for a large attendance is very flattering, since the veterinary associations of Michigan, Indiana, Ohio, and Ontario have resolved to take an active interest in and attend the meeting at Detroit. It also seems probable that large delegations will attend from other

States. The Local Committee—consisting of such enthusiastic members as Drs. Brenton, Hawkins, and Dunphy—assures us that a most excellent clinic may be had, as there is unlimited material, and that the veterinarians of that city will take an active interest in making this feature of our meeting a grand success. Those of the membership who are particularly interested in surgical procedure should volunteer to demonstrate a large variety of operations representing professional advancement in surgical art.

The Secretary wishes the REVIEW to suggest to members the advisability of promptly notifying him of their willingness to contribute to the programme of this meeting. He says: "The time is certainly at hand when the value of our meetings must be duly appreciated and it be counted a privilege to be sought after to have the pleasure and honor of presenting a paper before this scientific body."

NEWS AND ITEMS.

DR. W. C. HOLDEN, Delphos, Ohio, has established a well appointed hospital in connection with his practice, with operating table and other modern appliances.

DEATH OF DR. M. J. TEWEY.—As the REVIEW goes to press we learn with deep regret of the death of Martin J. Tewey, D. V. S., of Irvington-on-the-Hudson, President of the Westchester County V. M. Association, a graduate of the A. V. C., and a practitioner of note. Pneumonia was the cause.

IT is estimated by competent authority that under the new veterinary law of Iowa there will be between 400 and 500 registrations, 150 of whom will be graduates. The bill requires that the board of examiners be appointed within sixty days after its enactment (April 2d).

A NEW SLING.—Dr. S. R. Howard, Hillsboro, Ohio, writes under date of April 2: "I was down in the hills yesterday, and while in the neighborhood I went to see a new kind of swing for horses. Big mare had broken metacarpal. They bored four holes and let the mare's legs through. You can imagine the rest. She lived four days."

A RETREAT FOR AGED HORSES.—An association is forming in Brooklyn, N. Y., with the object of securing funds with which to purchase a farm and maintain an asylum for old or invalid equines who, having served a life of usefulness, may spend their remaining days in comfortable idleness, rather than to be forced to undergo the hardships of the peddler's wagon or other such labor, which is usually accompanied by insufficient food and often much brutality. The names of the first officers are not prominent in the horse world, and we fear but little will come of the effort.

THE IOWA VETERINARY LAW PASSED.—Dr. W. A. Heck, of Maquoketa, Iowa, writes: "I presume you have already been informed of the passage of our bill regulating the practice of veterinary medicine in Iowa. We succeeded in getting it through the senate with some amendments, and while it is not what we had hoped for in all ways, we are jubilant over the victory, and feel that we have made a good start. It seems the vital part of the bill (the provisions for a board of examiners) was not altered, and in this we have as good a clause as most States now possess." [The bill as presented was published in full in the March REVIEW.—EDITOR.]

PHENOMENAL SALE OF HORSES.—The first spring consignment of harness horses by Messrs. Tichenor & Co., was disposed of by auction at the American Horse Exchange, New York, on Wednesday, April 18, and we are safe in the statement that the prices obtained were far in excess of any similar event in the history of this country, and perhaps in the world. The horses were for the most part trotting bred, many standard, registered, and with records or fast trials; but they were not toffered so much for the quality of speed as for all-around action, conformation, and manners. They were trained to the minute, perfectly bitted, and could "go fast and high." It transpired that they not only went high in action, but also in price, for "The Turk," a stag of grand conformation and action, with a trial of 2:17¼, brought the unprecedented price of $7800, and from this they ranged downward, thirty-nine head averaging $1200, outstripping all records. A few days later the trotting-bred coach horse, Red Cloud, was sold privately to Thomas W. Lawson, of Boston, for $10,000.

A PARTURIENT FREAK IN A BITCH.—There came within the observation of the junior editor of the REVIEW a month or two ago the following circumstance: A hybrid fox-terrier bitch, about three years old, was pregnant, but what kind of dog had served her was unknown, as she had the liberty of the streets of Brooklyn at all times. When the close of gestation was near at hand, she sought a well-bedded unused stall in the stable of her owner in which to undergo the parturient act. On Monday morning the stableman noticed that she was very uneasy, and at half past six that morning she gave birth to a dead pup, following this up at various periods during that day and evening by similar occurrences until on Tuesday morning there had been born five dead pups. Apparently the entire contents of the uterus had made its escape and the bitch appeared to feel as well as could be expected under such circumstances. Nothing more was thought of the matter until she was again discovered in labor on the following Sunday morning, and while the stableman stood watching her efforts a live male pup was born, which lived and thrived, and is as vigorous and normal as it is possible to be. Was this a case of double fecundation?

Epicarin.—Epicarin, $C_6H_3{:}COOH{:}OH.CH_2C_{10}H_6OH$, is a condensation-product of creosotinic acid and beta-naphtol. In the ordinary form in which it is found in the market, it forms a reddish-yellow, strongly acid powder, melting at 199° C., and readily soluble in alcohol and in ether. It forms easily soluble, neutral salts. According to Frick and Muller (E. Merck's *Bericht*, 1900), epicarin is but very slightly toxic, and is a good remedy for scabies in dogs, as it quickly checks the itching, and rapidly removes the affection when contracted by a human being. Though epicarin does not possess the power to kill the acarus, to the same degree as do carbolic acid, creosote, tar, lysol, creolin and iodine, its application is said to be far pleasanter. In oleaginous suspensions, or mixed with green soap, epicarin is too weak for the treatment of scabies on household animals; it should be applied in alcoholic or ethero-alcoholic solution. A solution which is recommended is the following: epicarin, 10 gm.; castor oil, 10 gm.; alcohol, 100 gm. This should be applied to the skin by means of a brush lightly drawn through the hairy coat. It is reported that these applications, should they even be licked off by the dog, are entirely free from any disadvantages, and, made every other day, rapidly effect a cure. Prof. Kaposi states (*ibid.*) that epicarin is also effective in cutaneous diseases in human beings, and that its action, resembling that of beta-naphtol, perhaps renders it of special benefit in the treatment of children. He recommends the epicarin to be used in the form of a 10 per cent. ointment with any suitable base, or in solution with alcohol and glycerin.—(*Merck's Report.*)

Legislative Bills in New York.—Chairman Wm. Henry Kelly, of the Legislative Committee of the N. Y. S. V. M. A., informs the Review that Assembly bills Nos. 567, 913 and 2526 have become laws. The former provides that "any person who practiced veterinary medicine and surgery as a profession in this State for a period of ten years prior to May 9, 1893, and who was eligible to register according to the provisions of chapter 313 of the laws of 1886, but who failed to register in the veterinary medical register in the county in which he so practiced, may, on unanimous recommendation of the State board of veterinary medical examiners, receive from the regents a certificate which shall entitle him to register as a veterinary practitioner in the county of his residence or practice at any time within two months after the passage of this act." The latter bill furthers the provision of the former by modifying the licensing clause to admit those provided for in the foregoing amendment. The Governor vetoed Senate Bill 899, 987, which provided that "any person who matriculated in a veterinary medical school prior to Jan. 1, 1895, and who received his degree therefrom prior to Jan. 1, 1897, may on recommendation . . . . register as a veterinary practitioner in the county of his residence," etc.

EMPIRICISM [*From the Horseshoer's Journal*].—During the past month a communication was received at this office from a well-known veterinarian, who makes complaint against the practice of some horseshoers invading the domain of veterinary medicine, when their qualifications are not such as to entitle them to legitimately assume such practice. Says our correspondent, who, by the way, does not write for publication, but rather as a slight reminder, that the practice which he refers to bears the stamp of rank empiricism, "What disappoints me most is that some of the parties whom I have in mind were careful to attend a course of lectures which was specially prepared for horseshoers by qualified veterinarians, whose admiration for men who were endeavoring to improve their status in society was of that nature that made it a pleasure for them (the veterinarians) to lend what assistance they had at their disposal to the end of enlightenment, an action which I am convinced called for a steady recognition at the hands of those benefited, instead of the ingratitude which some of those referred to have an undue quantity of." We are glad that this question has been brought to notice, not that we will now engage in any lengthy discussion of it, but because, like everything else, a starting point must be reached, and in no better way can a satisfactory adherence to principles be germinated through a community than by a thorough and enlightened discussion of the rights or wrongs which attend such. If delved into, this question should produce some rare examples of wantonness, possibly on the part of both sides to it, but most certainly on the part of very many horseshoers, whom we are well aware are guilty of the charges which the estimable gentleman who complains lays against them. For ourselves, we have no defense whatever to make for the quack horse doctor, for such the empiric can only be dubbed, who will invade the precincts of a profession which has taken years of self-sacrifice and a constancy of effort on the part of earnest and devoted men to build up to a place within the realm of sciences which only high-minded knowledge, secured at a great cost of honest endeavor, fitted it for recognition. Invadersof the kind referred to are as injurious to the horseshoeing profession—aye, more so—than they are to that of veterinary medicine. Simply stated, they are "double," their actions going to show that they are falsely courting patronage by an indecent and dishonest display of talent, which they herald on glib tongues more after the manner of a horse jockey than that of a professor of real knowledge. Such actions the National Association of Master Horseshoers has long since disapproved of, if not condemned, and they who are guilty stand as such reproached by a justice-loving band, whose desire it is to do unto others as it would have others do unto it. The veterinary profession on our side of the case need have no fear that the call which the National Association have long since issued to its members by the adoption of a resolution condemning empiricism will ever be revoked. The sign will always be hung out as a guiding mark to members to keep within the bounds where true unity and clean skill will find plenty reward and where vulturelike practices of any kind or description will continue to be frowned on by men whose regard for station is measured only by the rule of justice.

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—Enclosed please find P. O. order for $3.00 to renew my subscription for your *most* valuable publication. I could not dispense with it for several times its cost and the information I have received by perusing its pages has been worth many times more than I can express.—*W. N. Babcock*, *V. S.*, *Lebanon*, *N. H.*

—I have noted with interest the determination of the REVIEW to do business on a cash basis, and I sincerely trust that the profession throughout the country will appreciate the righteousness of this determination, and will earnestly endeavor to increase the subscription list and contribute to its pages.—*S. Stewart*, *M. D.*, *V. S.*, *Kansas City*, *Kansas.*

—I now take this opportunity to testify as to the worth of the AMERICAN VETERINARY REVIEW, and am lost without it, as it always comes on time with some new thought as well as articles by some of our brightest men in the profession. It is certainly a light to the veterinarian who is so far removed from the large cities where he is enabled to commingle with his fellow practitioner.—*Fred. E. Pierce*, *Oakland*, *Cal.*

—Allow me to compliment you on the position you have taken in regard to delinquent subscribers. The publishing of any journal is a business proposition and anyone desiring to derive the benefit which is to be obtained from the pages of the REVIEW should be willing to forward his subscription, and when it is due. For the REVIEW I would state that it is the most up-to-date "bureau of information" published in this country, coming out promptly and on time. I look for mine regularly and would feel lost without it.—*Albert C. Worms*, *M. D. C.*, *Chicago*, *Ill.*

—Enclosed please find P. O. order of $3.00 in payment for subscription for year ending March, 1901. I have been a subscriber for three years only, but I want to be with you always. Every copy of the REVIEW lends me a better insight into veterinary practice. I can sincerely say it is a treasure. I look forward to it, as every month *positively* brings items of interest which are so helpful in a country practice. Wishing the REVIEW the best of luck, I remain, yours very truly,—*A. A. Etienne*, *D. V. S.*, *Ware*, *Mass.*

—Inclosed you will find money order for $3 to pay for the REVIEW from March, 1900, to March, 1901. Knowing something about the numerous obstacles that beset the pathway of the veterinary editor in this country, I have at all times endeavored to impress upon the members of the veterinary profession that one of the first duties they owe to their calling, is to give their undivided support both in a financial and literary manner to the journals of this country. If the question were asked : What is the standing of a profession or trade in this country to-day that is not represented by one or more trade journals, the question might be readily answered, that such a profession or trade is practically without any influence in the body politic. We have in the whole of North America (as far as I am aware) but two journals devoted exclusively to the interests of veterinary science, and I think that in supporting those two journals, the practitioner of veterinary medicine is simply performing a duty he owes to his profession and himself.—*W. J. Martin*, *M. D. C.*, *Kankakee*, *Ill.*

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HORSE AMBULANCE FOR SALE.

The widow of the late Dr. Wm. H. Harbaugh, of Richmond, Va., wishes to dispose of his ambulance, which he had specially built and used but a short time before his death, it being now practically as good as new. Any one wishing such a desirable addition to his hospital will do well to address MRS. SALLIE I. HARBAUGH, Fairmount, Richmond, Va.

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NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the AMERICAN VETERINARY REVIEW. Any one having an extra copy of that number please address H. D. STEBBINS, V.S., West Winfield, N. Y.

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AMERICAN VETERINARY REVIEW.

JUNE, 1900.

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EDITORIAL.

THE VETERINARY AMENDMENT OF THE ARMY REORGANIZATION BILL.

In its session of May 4th, the Senate passed the Army Reorganization Bill, and with it Senator Kenney's amendment, creating a Veterinary Corps in the Army. The amendment was discussed at length, but was finally adopted by a vote of 25-23. It was favored by Senators Kenney, Wolcott, and Gallinger, all of whom emphasized the necessity of the corps, Mr. Wolcott calling attention to the veterinary corps, with officers of high rank, in the European armies, and paying a high tribute to the men who had made a study of caring for dumb animals. Mr. Cockrell opposed the corps as unnecessary, while Senator Sewell said that the captains of cavalry were men thoroughly familiar with the diseases of the horse. Senator Lodge thought it was a great mistake to create a civilian corps with simply a multiplication of civilian officers, and Senator Proctor read a letter from the Secretary of War opposing the amendment. Mr. Kenney said, however, that the amendment was approved by all the prominent officers of the army, including the Major-General Commanding. Mr. Gallinger said it was important that educated men should be in the army to care for the animals, and thought the amendment ought to be adopted in justice to a class of educated, professional men. These veterinarians, he said, could be swept aside no longer as merely "horse doctors." He would esteem it a privilege, he said, to vote for the amendment.

As agreed to, the amendment reads as follows:

> That the veterinary corps shall consist of a chief veterinarian, with the rank, pay, and allowances of a colonel, United States army; an assistant chief veterinarian, with the rank, pay, and allowances of a major, United States army, to be promoted in 1905, after competitive satisfactory examination, from the grade of veterinarian and captain; four veterinarians, with the rank, pay, and allowances of a captain of cavalry, to be promoted in 1903, after competitive satisfactory examination, from the grade of assistant veterinarian and first lieutenant; ten assistant veterinarians, with the rank, pay, and allowances of a first lieutenant of cavalry, to be promoted, after satisfactory examination, from the grade of assistant veterinarian and second lieutenant after one year's service in this grade; twenty assistant veterinarians, with the rank, pay, and allowances of a second lieutenant of cavalry, to be appointed after satisfactory examination: Provided, That these twenty positions shall include the veterinarians, first class, provided for in the act of March 2, 1899, who have passed satisfactory examinations, and also the six veterinarians, second class, who are now employed in the army under said act of March 2, 1899. All rules and regulations governing the veterinary corps shall be made by the Secretary of War, and the chief veterinarian shall report directly to that officer. For pay of officers of the veterinary corps, $33,500.

While the success of this veterinary amendment is highly gratifying and pleasing to the profession, we must consider the efforts which will be made in the House of Representatives by our adversaries to defeat or cripple this amendment. Such action is indicated by the language of the following part of an editorial in the *Army and Navy Journal* of May 15th:

> The section of the reorganization bill which provides for a corps of veterinary surgeons, which was incorporated in the original bill by the Senate will certainly operate to the detriment of the entire measure when it comes before the House. This section was adopted by one of the sharpest pieces of lobby work which has ever been known. Every member of the Senate Committee on Military Affairs reported against the section, and it was not favorably considered by the Secretary of War or any officer in the War Department. There is no doubt that the cutting out of this section will be one of the first changes made by the House Committee.

Thus it was that at the hearing of the Military Committee of the House, on May 15, the Secretary of War said with reference to a corps of veterinary surgeons that he was very much opposed to establishing another bureau of the War Department of this or of any other nature. Veterinarians were needed, but they should be under the control of the Adjutant-General's office and should not be a separate corps or department of the army. The following amendment to the Senate Bill relative to this point was submitted by the Secretary: "That the President is authorized to appoint by and with the advice and consent of the Senate, after such examinations, under such regulations prescribed by the Secretary of War, two veterinaries for each cavalry regiment and one for each battery of field artillery in the service, provided that said veterinaries shall have the rank of second lieutenants of cavalry without command, and provided that two veterinaries of the first class now in the service shall be appointed without further examination, and the veterinaries of the second class now in the service shall be assigned to duty under direction of the Secretary of War, and, upon separation from the service of the present incumbent, no more of the second class provided for under the act of March 2, 1899, shall be appointed."

This amendment seemed to be accepted with favor by the members of the House Committee, and will probably be incorporated in the bill as reported by that committee.

While it will be seen from the above that the Secretary of War is not altogether opposed to a change, we fully realize the difficulties with which our friends in Washington are battling for the good of the profession, and we shall not be unmindful of their endeavors, and only hope that further and full success may crown their efforts. O. S.

THE FUTURE OF THE VETERINARY PRACTITIONER.

During the past few years of commercial depression in this country the value of horses became so reduced as to render medical attendance upon them when sick or disabled a questionable economic problem, and the status of the veterinarian from a financial point of view was very discouraging—so much so that many abandoned the practice of the profession and sought employment in other fields. The introduction of other modes of transit (especially the bicycle) became an easy matter, as the public was earnestly seeking to curtail expenses, and readily grasped the explanation for giving up the maintenance of horses by putting forth the fictitious love of outdoor exercise as afforded by the health-giving bicycle, quoting eminent medical authority in support of their contention. When following this came the stock-jobbing automobile syndicates, with glowing statements of prospective business that would have done credit to the late Col. Sellers, the yellow journals rushed to the conclusion that the horseless age was upon us, and illustrated their faith by ridiculing the horse and denouncing him as unclean and unsafe, publishing pictures of imaginary museums containing his fossil bones as a reminder of the dark days when we were in such a crude state as to have utilized him as a means of pleasure and a beast of burden.

During that period the REVIEW endeavored to take a conservative view of the situation, pointing out the elements which were conspiring to mislead the public, and showing how the noblest beast of creation, intimately associated with the history of all great events in the world's progress, was in no danger of suffering impairment of his glory in this enlightened age. His relief from burdens that were almost a sacrilege to exact from him meant nothing but a greater destiny for him. We feel, therefore, at this time, that the REVIEW is eligible to refer to these recent circumstances of history, and to draw the attention of its readers to the fact that throughout the country the appreciation of the horse was never keener than at the present time, and the demand for him is increasing with a rapidity that seriously menaces the supply. Prices are up to the boom standard, and students of the breeding situation predict that they are but in their infancy. The foreign market recently opened up to America is very encouraging, and reports credit the American horse with giving general satisfaction wherever he is sent.

This all means that the future of the veterinary practitioner is very bright, as owners of horses at prevailing prices must see the profit of securing intelligent attendance upon their sick or disabled animals in order to restore them to usefulness. We, therefore, felicitate the profession upon the prospects that lie before it.

In a recent article published in these pages, Prof. W. L. Williams has put the subject in such a forcible manner that we here reproduce one paragraph, and commend it for its wisdom and elegance:

> "Intelligence, close companionship, beauty of form and grace of motion, attainable only in living beings, guarantees a permanent place for the horse, and the passing of the lower types only enhances the value of those retained, so that the intelligent, competent horse, in field or on road, in the carriage or under the saddle, in peace or war, is as highly prized to-day in affection or gold as the Bucephalus of Alexander the Great or the chariot horses of the Olympian gods."

SOUTH AFRICAN HORSE SICKNESS.

The true etiology of this deadly equine plague that is at the present time decimating the ranks of the British cavalry and transport service in South Africa, still remains an unsolved enigma. From the reports of veterinarians and others at present in that part of the world, it appears that the disease is due to some toxic principle that emanates from the earth and settles on the grass during the night time. That there is considerable truth in this hypothesis is borne out by the fact that horses that are kept from grazing upon the prairie or "veldt" during the night and until the dew has evaporated from off the grass in the morning, usually escape the disease. Whether this lethal emanation that arises from the earth and grass is due to the presence of a specific bacteria, or to a fungus parasite similar to the *plasmodium malariæ* that causes malarial fever in man is unknown, although the opinion appears to be prevalent among investigators of this disease, that it is caused by a parasite of the protozoa class. Such parasites have been found in the blood of horses suffering from the disease, though attempts to isolate this micro-organism in a culture medium and produce the disease in healthy animals by inoculation have failed. The disease may be produced by the intravenous injection of the blood or serum from a diseased animal.

The geographical range of the disease, which is at times quite sporadic, appears to be common to all parts of South Africa, and has been met with as far north as Massowah on the Red Sea, although it is in Cape Colony, Natal, Rhodesia and the veldt plains of the Transvaal that the disease is most common and often rages with the utmost virulence.

The disease usually makes its appearance about the middle of February, but does not reach the acme of its virulence until the latter part of March and the beginning of April. The frightful mortality list of this disease is simply appalling, often but a few hours of infection (2 to 10) being sufficient to cause the death of an apparently healthy horse. From the reports of cavalry and transport officers in the field, we learn that sometimes as high as 98 per cent. of the horses attacked in certain camps have succumbed to the disease.

The disease makes its appearance under several distinct forms: That affecting the lungs and pleuræ (*paard ziekte*); second, a phlegmonous inflammation of the head (*dikop*, or "thick head"), which often swells to an enormous extent; third, in which the tongue becomes so swollen that it cannot be retained in the mouth (blue tongue). There is also an enteric form characterized by severe abdominal pain and enteritis. During the progress of the disease there is marked venous and arterial congestion; respiration hurried, from 80 to 100 per minute; temperature ranges from 105 to 107° F. There is a profuse outpouring of mucous and serum from the bronchial tubes, and in some cases so profuse is this discharge that death from suffocation rapidly ensues. The period of incubation averages from eight to ten days. W. J. M.

THE RECENT ARMY EXAMINATIONS.

In order to fill the remaining few vacancies of veterinarians in the U. S. Cavalry, army examinations were recently held at different military posts throughout the States. The examination extended over nine days (May 2 to May 10, inclusive) and consisted of a physical examination by a board of medical officers, and of written examinations in all professional medical branches, each day occupying from six to seven hours, and finally of a practical examination in equitation.

The Board of Examiners consisted of Major Kingsbury and First Lieut. Philipps, 3d U. S. Cavalry, and Dr. Victor A. Norgaard, of the Bureau of Animal Industry. There can be no doubt that the Board had a hard task of selecting the candidates for examination out of a number of about one hundred and fifty applicants, 90 per cent. of whom were graduates from two-term schools and a number of them illiterates. As far as the examination itself is concerned, the professional questions were very fair and practical, but they covered so completely the whole range of veterinary medical knowledge, up to the latest theories and discoveries, that only a man of well-rounded education could face them with anything like success. If this is going to be the standard for future army veterinary examinations, as it evidently is, it will effectively bar out not only incompetent men, but also those of an incomplete and superficial education. Besides, it was very evident that the members of the Board were "sizing up" each candidate as to his personal character, social manners and aptitude for military service, as is done at examinations for commissions in the army.

If the army will now reciprocate by giving the future veterinarians a proper status, it will, in time and under prudent leadership, develop into a veterinary corps second to none of other countries. O. S.

ELSEWHERE will be found the first installment of an excellent contribution to our literature on the subject of "Dog Distemper," by Dr. Coleman Nockolds, of Grand Rapids, Mich. The author, while presenting no new discovery in connection with this canine plague, has collaborated the subject in such a practical and faithful manner as to render his description of the disease the clearest and most comprehensive that we have seen.

ORIGINAL ARTICLES.

TEXAS FEVER.

EXPERIMENTS MADE BY THE MISSOURI EXPERIMENT STATION AND THE MISSOURI STATE BOARD OF AGRICULTURE, IN CO-OPERATION WITH THE TEXAS EXPERIMENT STATION, IN IMMUNIZING NORTHERN BREEDING CATTLE AGAINST TEXAS FEVER FOR THE SOUTHERN TRADE.

By J. W. Connaway, Veterinarian Missouri Experiment Station, and M. Francis, Veterinarian Texas Experiment Station.

(*Continued from page 112.*)

III. EXPERIMENTS ON IMMUNIZING NORTHERN CATTLE AGAINST TEXAS FEVER BY INOCULATION WITH INFECTED BLOOD.

In the following section a report is given of the inoculation of over four hundred registered breeding cattle raised north of the Texas fever quarantine line, and shipped into infected territory in the State of Texas.

As stated in the introductory section Texas fever can be induced artificially in northern raised cattle by hypodermic injection of blood from immune southern cattle. This discovery was made by Drs. Smith and Kilbourne, in their classical investigations into the pathology of Texas fever.* In the course of these investigations it was observed that the attack induced in this artificial way "was not so fatal as the natural disease"; and the suggestion was made that by further experimentation a practical method of preventive inoculation might be perfected.

Recent experiments in Australia, where the "fever tick" is gradually spreading over the country on account of the mildness of the climate, show that preventive inoculation by means of infected blood has met with great success as a defensive measure on the cattle ranges of that country. Moreover that the method is being employed in immunizing stud and range bulls intended for infected territory.

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* Bulletin No. 1 Bureau of Animal Industry and Reports of C. J. Pound, director of Queensland Stock Institute, and Dr. J. Sidney Hunt, Government Pathologist, Queensland.

The work reported herein shows that the employment of this method as a purely commercial measure, has given fair success notwithstanding the unavoidable fatiguing effects of a long railroad journey, and the widely different climatic conditions that must be encountered by cattle shipped from northern to southern sections of this country.

In regard to the mechanical details of this work, it will be sufficient to say that the blood is taken from the jugular vein of a proper supply animal by means of a sterile canula. The vessel for collecting the blood, and all instruments that come in contact with it being sterilized, and kept sterile throughout the operation. The fibrin is removed by means of a wire whipper to keep the blood in a fluid condition. The inoculation is made by means of a properly graduated hypodermic syringe. Minute details as to sterilizing the instruments, drawing and preparing the blood, and making the injections are unnecessary; as those who are competent to carry on this work have been trained in these surgical details. Everyone who undertakes inoculation should be familiar with the pathology of this disease, for medical treatment will be necessary in some cases, and cannot be carried out intelligently without a practical knowledge of the pathological processes.

The impression prevails that inoculation against "Texas fever," is as simple and harmless as inoculation against "blackleg." On the contrary, the effects are more severe; some signs of illness are expected in all that become properly immunized and attention is necessary through the inoculation fever. Moreover, attention must be given throughout the first season of tick infestation to prevent fatal relapses especially in the older bulls.

The history of the several lots of cattle that have been inoculated is given below.

BULLOCK.—10 HEAD OF REGISTERED ABERDEEN ANGUS BULLS.

The cattle used consisted of ten Aberdeen-Angus bulls, six to ten months of age, raised near Wichita, Kansas.

The blood used was drawn from an immune cow in Brazos county, Texas. To it was added ten per cent. of saturated watery solution of tri-kresol, to lessen the danger of putrefaction. The blood was immediately forwarded to Wichita. The inoculations were made by Dr. Ward on November 19, 1897, who gave each bull 8 cc. of the blood subcutaneously. After inoculation, the bulls were kept as quiet as possible in a lot during the day and in a warm barn at night. They were fed prairie hay and a mixture of equal parts of corn chop, oats and bran. During the fever following the inoculation they showed a marked loss of flesh, but none refused food entirely. They were held in this lot for 30 days, then shipped to the Brightside ranch in Brazoria county, Texas, where they arrived December 24, 1897. They were put with southern cattle, no attempt being made to isolate them. They were grazed on oats, and fed cotton seed, and sorghum hay. On January 14, 1898, one of them died suddenly. One or two others were sick but recovered. No other sickness occurred among them during the following summer (1898), and they have grown fairly well. As to the present condition of these cattle, the manager writes: "In the spring of 1899 they were turned in with the range cattle, being at that time two years old. They have taken their chances like southern grown cattle, and have done good service and look well."

RHEA.—10 HEAD OF REGISTERED SHORTHORN BULLS AND HEIFERS.

This experiment differs from the preceding in that the inoculations with immune blood were made after the cattle had been taken south.

Lot I, consisted of four animals, two bulls about eight months old, and two heifers about 12 months old. These cattle were pure bred Shorthorns, raised near Council Grove, Kansas. They were shipped south and arrived in Collin county, Texas, in February, 1898. They received subcutaneous injections of defibrinated blood, from a cow raised in Brazos county, Texas. The bulls received 4 cc., and the heifers 8 cc. Trikresol was added as in the above experiment. In eight days one of the bulls and one of the heifers refused their food, became gaunt, showed reeling gait, which continued for some days. They were eating again reasonably well by the expiration of two weeks. The other bull and other heifer which received the same dose at the same time were not apparently affected.

After twenty days the four were re-inoculated as in the first instance. The two that were sickened by the first dose were not apparently affected by the second. The other two, on the ninth day refused to eat, and were stupid for several days. On April 25th, each animal received a third inoculation of 8 cc., of defibrinated blood, but no effects were apparent from it.

Lot II, consisted of six registered Shorthorns, raised in Cooper county, Missouri, bred by W. P. Harned. They were shipped to Collin county, Texas, where they arrived April 21st, 1898. The lot consisted of one bull seven months old, and five heifers from 8 to 12 months old. On April 25th, each one received 4 cc. of defibrinated blood subcutaneously. This blood, as in the former experiment, had been prepared at the Texas Experiment Station, from an immune cow. Eight days later four of the calves left their feed untouched, but no symptoms of an alarming character developed.

FIG. 5.—GROUP OF INOCULATED SHORTHORN HEIFERS, RAISED IN COOPER COUNTY, MISSOURI. HAVE PASSED TWO SEASONS IN TEXAS.

May 26, 1898, each calf received a second inoculation of 4 cc. defibrinated blood, subcutaneously. Eight days later they all showed a lack of relish for their food, which continued 3 or 4 days. Nothing further was noticed until September 10th, 1898, when one of the heifers of Lot I died. All of the remaining heifers produced good healthy calves in the spring of 1899, and have all passed the summer of 1899 successfully, though they have been very ticky and have perhaps suffered some from them.

GREEN.—136 HEAD OF REGISTERED SHORTHORN BULLS AND HEIFERS.

Lot I, consisted of ninety-four pure bred Shorthorns, whose ages ranged from six to twelve months. They were raised in New York, Ohio, Indiana, Illinois and Iowa, and had been bunched on the owner's farm in Coles county, Illinois.

October 15, 1898, each received 2.5 cc. of defibrinated blood subcutaneously. The blood used was from a six-year-old ox which had been raised in Southern Texas and had been brought to Illinois in September, 1898.

As neither of us could remain to make observations, most of the clinical notes have been supplied by Mrs. Dr. Green.

"October 29th (14th day). The smallest calves seem to be sick. Five or six have been stupid 2 or 3 days, and half of the bunch show symptoms of fever. The largest ones are not affected apparently."

"Nov. 2d (17th day). One of the calves died yesterday (16th day). Two are very sick; others are in various stages. Nearly all are discharging mucous from nose and mouth. They show staring coat, drawn and pinched appearance, drooping ears, panting, stiffness of the limbs, glassy eyes. In many the catarrhal symptoms, labored breathing and weakness, are severe."

"Nov. 4th (19th day). No local trace of the inoculation on any of the calves. Two of the smallest are sick. Some are getting better and some are just taking sick. The heifers seem to be less severely affected than the bulls. The most pronounced symptoms are, drooping ears, nasal discharge, which is bloody in some cases, rapid breathing, staggering gait; loss of appetite and flesh; pinched, drawn appearance of the whole body."

Nov. 9th. Went to Oakland again to see cattle and inoculate others. The majority of the cattle are doing well, about twenty look somewhat gaunt but most of them are eating well, —one young bull refuses food and appears very sick. Inoculated 43 more calves from Iowa, that had arrived since Oct. 15th, giving each 2.5 cc. of blood taken from the mate to the ox whose blood was used Oct. 15th. Also reinoculated six of the first lot which showed no marked symptoms, using 2.5 cc. of the same blood as Lot II.

"Nov. 10th. The young bull that has been so sick died last night."

"Nov. 19th. One calf of Lot II is very sick (10th day)." Recovered.

"Nov. 28th (43d day). The sick calf of Lot I, which had a relapse (2d reaction) is about well."

"Dec. 3d (49th day). The calves are doing very well. Feeding them on corn, oats, bran and hay, and turn them into the pasture on pleasant days. The second lot have not been so sick as the first. Some of the first have had relapse (second reaction). Three of the six which were reinoculated have shown the effects of it. All are now in thriving condition except two or three of Lot I." The probable cause of the cattle of the first lot not doing as well as the second is that they were exposed to a cold rain storm about the time of the primary fever period.

Dec. 18th. Cattle shipped south.

Dec. 20th. Cattle fed at Parsons, Kansas.

Dec. 23d. Train wrecked at Marques, Texas, at midnight. One car turned over. Ten calves killed outright, and many crippled.

Dec. 24th. Cattle arrived at San Antonio, Texas, and put in yards. They appear badly fatigued and gaunt from long journey and the shake-up of the wreck. Many of them have pink-eye.

Jan. 17, 1899. Cattle have been moved to the ranch in Dimmit county. Four or five have died of blackleg. Otherwise they are doing nicely.

Aug. 23d. No losses from fever among inoculated cattle up to July 10th. Not many ticks on them until then. Since that date have lost ten which were inoculated, and ten others have been sick but have recovered. They have been fed grain and hay or cane until June 1st, when grass was so abundant that they preferred it. They were doing as well as one could wish until July 10th. One Red Polled bull which has carried ticks all spring and summer has shown no signs of fever to date.

Sep. 20th. Cattle all doing well.

Has lost about 40 per cent. of those that were not inoculated.

TOD.—LAURELES RANCH, 30 HEAD OF REGISTERED HEREFORDS.

This lot of bulls, consisting of thirty head of registered Herefords bred in Missouri and Illinois, was supplied by Capt. John Tod, manager of the Laureles Ranch, Corpus Christi, Texas. On their arrival at the Missouri Station, Nov. 1, 1898, they varied in weight from about 275 lbs. to 850 lbs. The weight of each at the beginning and end of experiment, with gain or loss, are given at the head of the temperature tables, see pages 37 to 40, also in the clinical notes, pages 27 to 36.

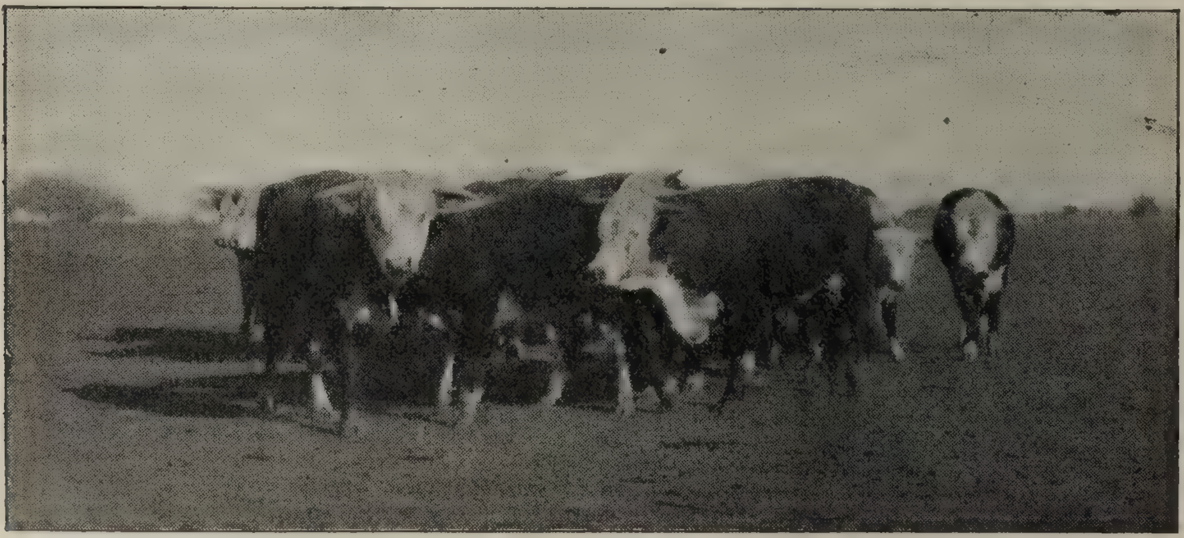

FIG. 6.—GROUP OF INOCULATED HEREFORD BULLS, SIX MONTHS AFTER EXPOSURE TO INFECTION AT THE LAURELES RANCH, CORPUS CHRISTI, TEXAS.

Before inoculating the bulls, they were given a week's rest, to allow them to overcome the soreness and fatigue incident to shipment, and to adjust themselves to changes of food and surroundings.

On November 7th, fourteen head of the small and medium size bulls were inoculated, each receiving subcutaneously 2.5 cc. defibrinated blood from an immune Texas steer.* This lot of bulls, is designated in the temperature tables and clinical notes as "Group I," and consisted of animals numbered as follows: Nos. 1, 3, 2, 13, 7, 14, 17, 12, 19, 15, 26, 4, 21 and 18. Bulls Nos. 4, 21 and 18 were reinoculated Dec. 8th with 2.5 cc. of defibrinated blood from a "recovered" native.

On Nov. 15th ten head more were inoculated from the Texan steer, 2.5 cc. blood being given. In this lot was included one of the larger bulls (No. 23) weighing 680 lbs. In the temperature table and clinical notes this lot appears as Group II. The lot comprises bulls Nos. 8, 22, 20, 23, 24, 16, 10, 28, 25 and 5. All these except the first four were reinoculated Dec. 8th, dose 2.5 cc., from the recovered native.

The remaining six bulls, Nos. 58, 11, 29, 9, 30 and 6, the largest ones of the shipment, designated as Group III, were inoculated Nov. 29th, an initial dose of 1 cc. being given from the Texan steer, and nine days later (Dec. 8th) a second inoculation of 2 cc. from the recovered native was given. No reaction had appeared in this lot up to the time of the reinoculation.

Most of the bulls that were reinoculated in Groups I and II had shown no marked fever from the first inoculation, although a few animals that had shown fever were reinoculated to determine the effect of a second inoculation.

Temperature records and clinical notes are given upon each animal of this lot, to supply fuller knowledge of the effects of inoculation upon cattle of different sizes, than is available in the

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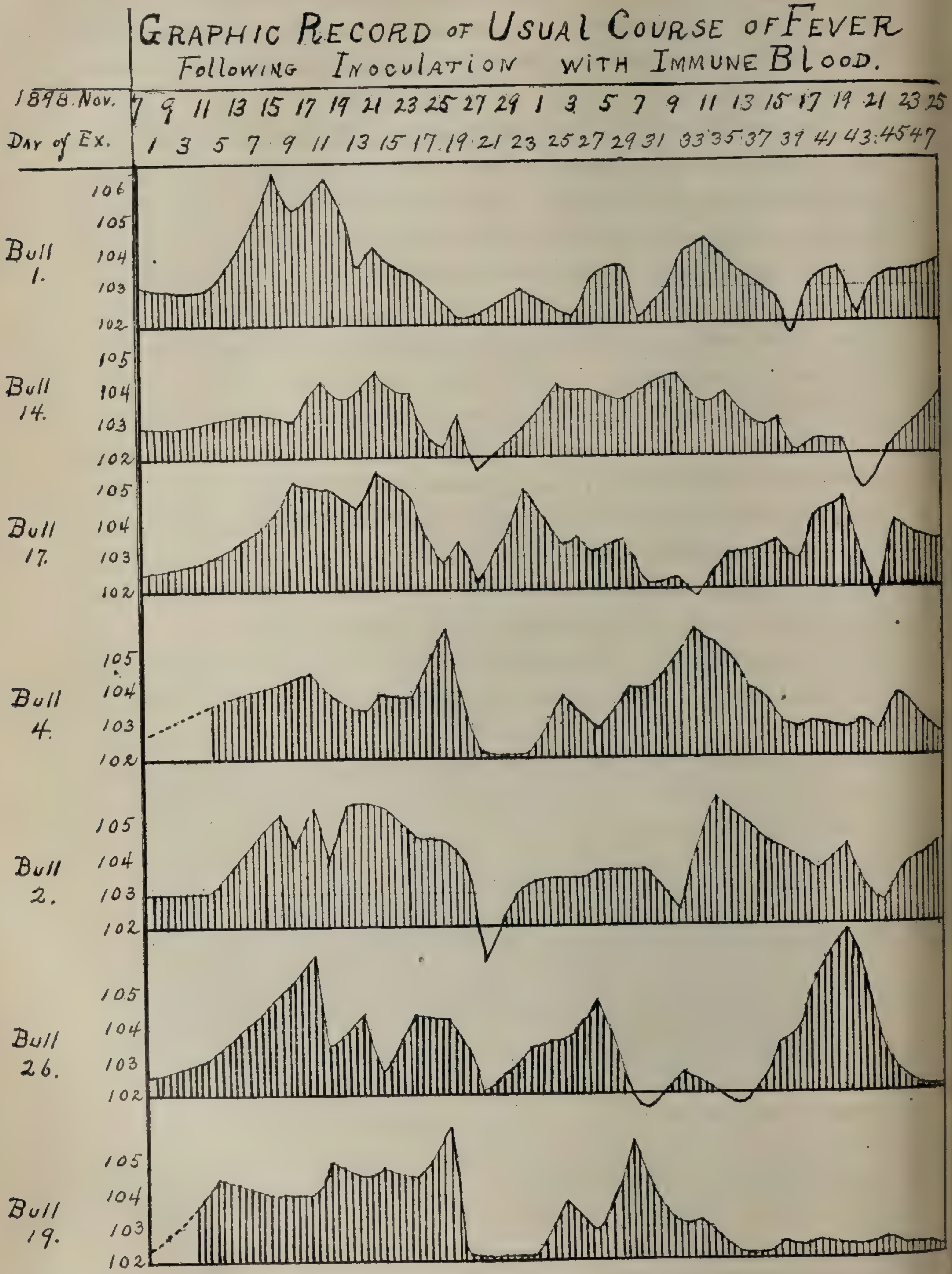
* This supply animal was received from College Station, Texas, in June, 1898; was one left over from "Dipping Experiments." The animal was kept on an infected pasture during the summer and was bearing a few mature ticks at the time the blood was used.

FIG. 7.


Graphic Record of Usual Course of Fever
Following Inoculation with Immune Blood.
1898. Nov.
7 9 11 13 15 17 19 21 23 25 27 29 1 3 5 7 9 11 13 15 17 19 21 23 25
Day of Ex.
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
Bull 1.
106
105
104
103
102
Bull 14.
105
104
103
102
Bull 17.
105
104
103
102
Bull 4.
105
104
103
102
Bull 2.
105
104
103
102
Bull 26.
105
104
103
102
Bull 19.
105
104
103
102

preceding experiments. These notes give the date of rise of fever, its duration and type, whether severe or mild, the condition of the animal when shipped and the history of the bulls after arrival in the south.

A study of the temperature records and notes shows that, as a rule, the inoculation fever begins about the 8th or 9th day after the inoculation, sometimes a little earlier and sometimes later; and that it usually continues from 7 to 8 days. In some cases it may not exceed 4 days, and in others it may be prolonged to 15 days. The daily average of the temperature during the primary fever period, counting all that reacted distinctly, was about 104.5° F.

A remarkable feature observed in this experiment was the occurrence in quite a number of animals of a distinct secondary fever period, beginning at about the 25th to 30th day after inoculation and continuing from 7 to 8 days (in a few cases 4 or 5 days and in a few from 12 to 16 days). This secondary fever as a rule was not so severe as the primary. The graphic records, page 26, illustrate this matter of the primary and secondary fever periods. In some animals that received but one inoculation, no appreciable reaction appeared at the usual period of primary fever, but came up strongly at the secondary period. These bulls were not kept under observation a sufficient length of time to determine whether a "periodicity" occurs in this fever, as in malarial (the micro-organism of which appears to be nearly related to that of Texas fever). The suggestion arises that a tertiary and succeeding recurrences of fever take place, each milder than the preceding, until finally immunity is attained.

The matter of the occurrence of the marked secondary fever period has been confirmed in experiment No. 8, carried on during the succeeding spring and summer at the Texas Experiment Station. In this later experiment five animals were used; the temperature records were taken twice daily, and in a more systematic manner than was possible in the larger group of the above experiment. In addition, regular determinations of the decrease and increase of blood corpuscles during the experiment were made. See graphic record, page 65.

CLINICAL NOTES ON THE TOD BULLS.

Group I. Inoculated Nov. 7, 1898; dose 2.5 cc. each. Shipped to Corpus Christi, Texas, Jan. 1, 1899. Arrived at destination Jan. 6, 1899.

Bull No. 1. Weight when received 272 lbs.; gained 60 days, 38 lbs. On eighth day had high fever which continued from 105 to 106° F. for five days, with slighter fever for a few days longer. The maximum temperature during this period was 106.4° F. On the 33d day began a secondary fever which continued four days. The temperature was about 104 during this period. Calf ate but little during acute stage of the primary fever, was very sick, urine highly colored from urates; found no hæmoglobin in the urine. Fell off in flesh considerably, but ate well and improved in condition after acute stage of fever had passed. In fair condition when shipped. Jan. 9th, 3d day after arrival in Texas, temperature 103.2. Reported dead from snake bite May 28th; had carried ticks since February, without showing fever.

Bull No. 3. Weight when received 285 lbs.; gained in 60 days 25 lbs. Had fever on 9th day; continued 4 days, temperature ranging from 104 to 106° F. Secondary fever period arose on 34th day, continued 4 days 104 to 105.9° F. Fell off some in flesh, but ate well and recovered condition. Shipped Jan. 1 in fair condition. Jan. 9th, temperature 102° F. June 24th, temperature 102° F. carrying ticks. Aug. 14th, has carried ticks through spring and summer, and has shown no serious illness; in good health Oct. 1st.

Bull No. 2. Weight 300 lbs. when received; lost during experiment 10 lbs. Primary fever began on eighth day, continued 11 days, 104 to 105.7° F. Was free from fever about 13 days. Secondary period began on 33d day and continued a week, at 104 to 105.8° F.; was off feed at height of fever; got thin and suffered from cold, although well protected in a barn. Was in poor condition when shipped. Calf appears to be affected with " Hoose " ; had husky cough when brought to Missouri Experiment Station. Jan. 9th, temperature 104. June 24th, temperature 104 ; has some ticks. This bull died in the summer. From the description given the death was probably due to " Hoose," or lung worms.*

Bull No. 13. Weight 382 lbs. when inoculated ; gained 18 lbs. Fever appeared on 9th day and continued 10 days, 103.9 to 108.4° F. A slight secondary fever 33d day, continued 4 days, 103 to 104° F. During height of fever was off feed and dull, head drooped. After fever had passed, ate well throughout the remainder of his stay. Was shipped in fair condition. Jan. 9th, third day after arrival in Texas, temperature 104. Jan. 11th, appeared well. Was found infested with ticks early in February, no fever. April 24th, no sickness since recovery from the shipping fever. June 24th, temperature 104. Has a few ticks, urine clear. July 22, doing well. Aug. 14th, doing well. Oct. 1st, in good health.

Bull No. 7. Weight when inoculated 390 lbs. ; no gain. Fever on 8th day ; continued 4 days, 104 to 105.8° F.; an occasional high temperature from 12th to 30th day. Secondary fever 29th to 35th day, 103.4 to 105.2° F. Did not thrive, fell off in flesh ; somewhat thin when shipped. Temperature was not taken at Corpus Christi ; and condition not mentioned. Became infested with ticks in February ; no sickness apparent. April 24th, has done well. June 24th, temperature 102.4, and is extremely " ticky " ; no depression apparent. Aug. 15th, in good health ; Oct. 1st, doing well.

Bull No. 14. Weight when inoculated 390 lbs. ; gained 10 lbs. Fever on 10th day, continued 6 days, 103.8 to 104.4. Slight recurrence on 25th to 27th days. Animal ate well and showed outwardly but little signs of fever. Shipped in fair condition. Jan. 9th, temperature on third day after unloading in Texas was normal, 102° F. Was infested with ticks in February, and has carried more or less through the summer. On June

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* The above three calves had just been weaned before being sent to the Station and were not in proper condition for inoculation.

24th, very ticky but showed no signs of illness. Temperature 102.4. In May and June was put for a while with heifers. Aug. 15, in good health; Oct. 1, doing well.

Bull No. 17. Weight 410 lbs. when inoculated; gained 75 lbs. Fever on 8th day, continued 8 days, 104 to 105.5° F. On the 40th to 42d day temperature 104 to 104.7. Bull was off feed and dumpish during primary fever period. Made a good recovery and was shipped in excellent condition. The temperature was normal, 102.1, on the third day after reaching Texas. This animal carried ticks through the summer, but had no fever. June 24th, temperature 101.8; was carrying ticks. Was for a time with heifers in May and June. Aug. 15th, in good health. Reported well Oct. 1st.

Bull No. 12. Weight 412 lbs. when received; gained 18 lbs. Had not recovered from shipping fever when inoculated, temperature 104. Had a well marked primary reaction, maximum temperature of 107.4° F. on the 10th day, and fever ten days longer, ranging from 103 to 105° F. Secondary rise, 103.2 to 105.6 34th to 38th days. This bull was off feed occasionally, but ate well the greater part of the time. Was looking well when shipped. Temperature after reaching destination, 103. Has carried ticks since early in February. June 24th, was carrying ticks, temperature 101.4. Aug. 15th, was in good health. Did some service in May and June. Was reported Oct. 1st as looking well.

Bull No. 19. Weight 428 lbs. when received; gain 49 lbs. Fever on the 4th day. Continued about two weeks, 103.4 to 106° F. Slight secondary fever on 29th and 30th days, lost some weight during fever period, but regained flesh. Ate well most of the time; made good recovery and was shipped south in fair condition. Temperature normal, 102° F., on arrival in Texas. Ticks were found on him Feb. 10th. April 24th, no fever to date. June 24th, temperature 103, very ticky. Did some service in May and June. Aug. 15th, reported in good health. Oct. 1st, looking well.

Bull No. 15. Weight 455 lbs. when received; gained 20 lbs.

From 4th to 14th day, somewhat feverish (103.5 to 106.4° F., evening temperatures), but was not off feed. From 23d to 27th day, calf appeared dumpish, lay down considerably, ate some, but appetite not good. Morning temperatures 104.7 to 106.2; one evening temperature 106.5° F., on a cold stormy day, Dec. 3d. For twelve days succeeding this fever period, animal did well. A third period of fever began about the 39th day and continued eight days, 103.6 to 105° F. This calf had some fever when shipped. Jan. 9th, three days after arrival in Texas, temperature 102.6. Feb. 10th, had ticks. April 24th, no sickness to date. June 24th, temperature 103.7, very ticky. Aug. 15th, is in good health; was with cows and heifers in May and June. Oct. 1st, looking well.

Bull No. 26. Weight 480 lbs. when received; gained 20 lbs. Through the usual primary fever period the daily temperature was somewhat irregular, 103 to 104.5° F. Afternoon temperature on 10th day was 106.2. On the 19th day had a catarrhal discharge from nose. Was not off feed, and did not show outwardly any serious symptoms up to the 40th day, when he appeared dumpish. Had a regular fever period from 39th day to 43d. Temperature 103.8 to 106.8° F., the latter on the 42d day at 11 A. M. Except for a slight running at the nose was in good condition when shipped; was eating well. Temperature on arrival in Texas was about normal. Infested with ticks in February. April 24th, no sickness had yet appeared. June 24th, animal ticky, but appeared well. Aug. 15th, bull in good health, has done some service. Reported well Oct. 1st.

Bull No. 4. Weight 380 lbs. when inoculated; gained 45 lbs. Fever on 8th day continued 10 days, 103.4 to 105.8° F. Secondary fever began on 29th day and continued 8 days, 103.8 to 105.8° F. This bull ate well through the fever and except for some falling off in flesh following the fever period, no outward signs of the fever were noticeable. At time of shipment the animal was in fair condition. This bull was reinoculated by mistake on December 8th, the third day of the secondary fever period. Temperature on arrival in Texas, normal. Has carried ticks during the summer. Reported in good health Aug. 15th and Oct. 1st.

Bull No. 21. Weight 415 lbs. when inoculated ; gained 30 lbs. Fever on 4th day, continued 10 days ; ranging from 103.6 to 104.4. Ate well and showed no marked outward signs of illness. Secondary rise on 33d day, and continued 5 days, 104 to 104.6° F. Shipped in good condition. This animal was reinoculated Dec. 8th with 2 cc. from a recovered native. Temperature on arrival in Texas 103.6, slight fever. Became infested with ticks in February. April 24th, reported in good health. June 24th, temperature 102.5, and carrying ticks. Aug. 15th, bull is still in good health ; has done some service. Oct. 1st, reported well.

Bull No. 18. Weight 445 lbs. when received ; gained 85 lbs. No distinct fever period occurred at the usual time following inoculation, only a few isolated high temperatures. On the 31st day and for a few days following the temperature was up to 104. The bull at this time was somewhat dumpish and off feed. The animal was reinoculated Dec. 8th at the beginning of this fever period, with 2.5 cc. from a recovered native. Was sent south in good condition. Had fever on arrival at Corpus Christi, Texas. Temperature Jan. 9th, 104.2. Was off a few days—probably a secondary reaction from the inoculation of Dec. 8th. Animal carried ticks through the summer. June 24th, temperature 103.4, bearing ticks. Was put with cows and heifers for a while in May and June. Was reported in good health Aug. 15th and Oct. 1st.

Tod's Bulls, Group II. Inoculated Nov. 15th, 1898, with 2.5 cc. defibrinated blood from Texan steer. They were shipped to Corpus Christi, Texas, Jan. 1, 1899, arrived at destination Jan 6.

Bull No. 8. Weight 370 lbs. when received ; gained 10 lbs. Had fever during the 60 days at the Station. From 25th to 34th days a somewhat continuous fever, 104 to 105.6° F. Animal looked thin when shipped, although he had made a slight gain in weight. Temperature on arrival in Texas, 103. Carried ticks through the summer; showed no serious illness, and Aug. 15th was in good health. Oct. 1st, reported well.

Bull No. 22. Weight 435 lbs. when received; gained 90 lbs. Had some fever when inoculated, probably from shipping. On 10th day was dull and off feed, afternoon temperature 106.3. From 30th to 33d days temperature 104 to 105° F., dumpish. The animal did well the greater part of the time, and was shipped in good condition. Jan. 9th, temperature, three days after arrival in Texas, 103° F. August 15th, in good health, has been well infested with ticks. Oct. 1st, looks well.

Bull No. 20. Weight when received 550 lbs.; gained 60 lbs. Scarcely any elevation of temperature until the 29th day after inoculation. From 29th to 37th days, 103.8 to 104.6° F. Was a little off, but did not refuse food. Did well and was shipped in good condition. Jan. 9th, temperature 103. Reported well April 24th, June 24th, and July 22d. Aug. 15th was still in good health. Has done service. Oct. 1st, reported in good health.

Bull No. 23. Weight 680 lbs.; gained 30 lbs. Fever on the 11th day, continued 8 days. Temperature ranging from 104 to 107.6° F. Animal was off feed, dumpish, laid down much of the time, and appeared to be extremely sensitive to cold. Had no secondary reaction. Made a good recovery, and was shipped in fair condition. Temperature Jan. 9th, 103.2. August 15, has carried ticks since early in February, and has shown no serious illness; has done some service. Was reported well Oct. 1st.

Bull No. 24. Weight 365 lbs.; gained 50 lbs. Had no distinct reaction at the primary fever period, but a few isolated high temperatures—105.6° F. on the 10th day, 103.8° F on the 12th day. On the 35th day and following, a more continuous fever occurred, the temperature ranging from 103.7 to 107.1° F. This bull was reinoculated with 2.5 cc. defibrinated blood from a recovered native on the 23d day after the first inoculation. Twelve days after this the fever period began. He made a good recovery and was shipped in good condition. Jan. 9th, temperature 102.6. Was found to be infested with ticks in February. No illness resulted. Was in good health April 24th. June 24th, very ticky, temperature 103. No depression; in fair flesh. Aug. 15th and Oct. 1st, in good health.

Bull No. 16. Weight when inoculated 402 lbs.; gained 88 lbs. This bull was inoculated twice, but during the entire 60 days that he remained at the Station only a few high temperatures were observed—on the 8th day 103.8; 17th day, 103.9; 21st afternoon, 106; 34th day, 103.9; 40th day, 103.6° F. No continuous fever period occurred. This bull ate well and kept in excellent condition. Had some fever on arrival in Texas, 104° F., Jan. 9th. A delayed reaction may have occurred. This animal became very ticky and on June 24th had some fever, 104° F., but outwardly showed no marked signs of illness, and no depression. Aug. 15th, no illness. Was with cows and heifers a part of May and June. Oct. 1st, was in good health.

Bull No. 10. Weight 480 lbs.; gained 105 lbs. Showed but little rise of temperature from the first inoculation. Was reinoculated twenty-three days later (Dec. 8th) with 2½ cc. blood from a native made immune by artificial tick-infestation. A marked fever period followed this second inoculation, beginning on the fifth day and continuing six days or longer. This fever period corresponds in time to the secondary reaction of the usual type, and it is possible that this may be a delayed response to the first inoculation. Jan. 9th, temperature 101.1; Feb. 10th, had ticks. April 24th, no illness to date. June 24th, July 22d and Aug. 15th, in good health. Has done some service. Oct. 1st, was looking well.

Bull No. 28. Weight when received 498 lbs.; gained 47 lbs. Had an occasional high temperature following the first inoculation, but no sustained fever period. A well marked fever period followed the second inoculation, averaging 104.2 for nine days. In good condition when shipped. Jan. 9th, temperature 102.6° F. Reported in good health Feb. 10th, though carrying ticks. Also reported in good health April 24th, June 24th, July 22d and Aug. 15th, and Oct. 1st.

Has borne ticks. Has done service with cows and heifers.

Bull No. 25. Weight 507 lbs. when received; gained 38 lbs. No fever period occurred at the usual time following the first inoculation, but 11 days after the second inoculation the temperature rose to 105 and continued at about this point for five days. Jan. 9th, temperature 102° F. Aug. 15th, has carried ticks through the summer, and has shown no illness. Has done some service. Oct. 1st, was reported doing well.

Bull No. 5. Weight when received 600 lbs.; gained 80 lbs. Temperature normal for 27 days following first inoculation, except on 12th day, 104.8° F. Reinoculated on the 23d day; five days later a well marked fever period began and continued five days. Temperature 104 to 106.5° F. Was somewhat dumpish, but continued to eat; was shipped in good condition. Jan. 9th, temperature 102.2. June 24th, 102.2. Aug. 15th, is in good health after carrying fever ticks through the summer. He has done some service. Reported in good health Oct. 1st.

Group III. Inoculated Nov. 29th, 1898, 1 cc.; and Dec. 8th, 1898, 2 cc. Shipped to Corpus Christi, Texas, Jan. 1, 1899. Arrived at destination Jan. 6.

Bull No. 58. Weight when received 505 lbs.; gained 135 lbs. Had shown scarcely any signs of reaction up to the time of shipment, only two high temperatures, 104° F. on the 11th day after the second inoculation, and 103.8° F. on the 17th day. This animal was never off feed. Jan. 9th, temperature 103.6° F., a slight elevation. A secondary reaction of mild type may have occurred at about this time. Jan. 20th, arrived at ranch 25 miles from railroad. Feb. 10th, bearing ticks. April 24th, no sickness observed to date. June 24th, animal well and bearing ticks. Aug. 15th, is now in good health; has done some service. Oct. 1st, looking well.

Bull No. 11. Weight when received 620 lbs.; gained 110 lbs. Fever arose on the 6th day after first inoculation, and continued for five days, varying from 104.2 to 106.3° F. During fever period was off feed, dumpish, back arched. Made a good recovery and was shipped in excellent condition. Jan. 9th, temperature 103.1° F. Became infested with ticks in February. April 24th, no sickness to date. June 24th, is carrying ticks, appears well. Aug. 15th, in good health; has done service. Oct. 1st, reported well.

Bull No. 29. Weight 715 lbs. when inoculated; gained 30 lbs. No fever period had occurred up to the date of shipment, and only one high temperature, 104.1° F., on the 21st day after the first inoculation. This animal had some fever after arrival in Texas, 104.6 on Jan. 9th. This fever occurred at about the time for a secondary reaction following the inoculation on Dec. 8th, but possibly may have been simply shipping fever; did not thrive well for some time. Arrived at ranch safely. Feb. 10th, found ticks. May 13th, turned with cows; found sick June 7th, twenty-five days later; temperature 104° F. Was taken away from cows and kept quiet for a couple of weeks and was then turned out to service again, and has been well since. Reported well Aug. 15th and Oct. 1st.

(*To be continued.*)

DOG DISTEMPER.

By Coleman Nockolds, M.D., V.S., Grand Rapids, Mich.

Synonyms.—Dog plague; canine disease; bench show disease; typhus fever of the dog.

Definition.—An infectious disease of the dog, characterized clinically by catarrh of the respiratory and digestive tracts, together with profound muscular and nervous prostration.

This disease occurs often as an epizoötic, especially during dog shows. There is no country nor climate in which the dog is exempt from distemper.

Although the dog is the animal most frequently attacked, other animals, as the cat, fox, coyote, monkey, hyena, lion, tiger, prairie dog, and others, are sometimes the victims of distemper.

Etiology.—Amongst predisposing causes, cold, young age, weakly constitution, inbreeding, washing, debilitating diseases, parasites, shipping, œstrum, surgical operations, ovarectomy, emasculation, docking tails, trimming ears, hæmorrhage, wounds accidental or otherwise; in fact, any condition that tends to lower the vitality, or expose the animal to sudden changes of temperature, would act as a predisposing factor. The exciting cause is undoubtedly a micro-organism, but the specific agent has not been determined.

Distemper is one of the most common diseases of the dog; it is most common during the spring and fall, but occurs at any period of the year. The germ gains entrance to the system through the medium of the air. No doubt the micro-organism is almost universally distributed, but requires some extraordinary atmospheric condition to render it so virulent as to attack all subjects. Under ordinary atmospheric conditions, it seems content to attack only those dogs that are predisposed, and occurs as a sporadic or occasional trouble, being in existence among dogs at all times of the year; but it is only under special conditions that it breaks out in the epidemic form. At the same time it is always communicable from one dog to another by contagion, or it may be transferred by fomites.

Manner of Invasion.—Not determined positively, though probably by inspired air through the respiratory apparatus, also very likely through the alimentary canal, and in rare cases the conjunctiva. Dogs, cats and other animals are liable to contract this disease at all ages, and under any conditions, but predisposition renders them more susceptible. It must be remembered that even the healthiest are not exempt.

Immunity.—One attack renders the animal immune as a rule, but it can be contracted more than once. An attack always confers immunity for a certain period at least.

Period of Incubation.—Rarely exceeds three days, but varies according to the condition in which the exposed dog is in, to a more or less extent. During the period intervening between the time of exposure, and the actual onset of the attack, the dog is often depressed and shivers. The temperature may be elevated slightly, especially if the animal is weakly, or of a nervous temperament. Myalgic pains, prostration and partial or complete anorexia are amongst the signs observed during the period of invasion.

General Symptoms.--The true onset of distemper usually is ushered in by a severe rigor, with a rapid rise of temperature which may be at its height in twenty-four hours, 106° F., sometimes reaching as high as 110° F.; again the disease may start with slight shiverings, followed by a gradual rise of temperature, and occasionally the fever is intermittent. Vomiting is of frequent occurrence during the first stages. Often complete anorexia exists, or the appetite may be capricious. Pulse is either small, feeble and irregular, or rarely unusually slow, due to cardiac debility. The heart beats tumultuous and irregular, or weakened. A slight discharge from the nose and eyes is present in the majority of cases; this soon becomes excessive, of a muco-purulent nature, drying on the edges of the eyelids, causing them to adhere. The nose may be hot or cold; it is dry. Pain is present, causing the animal to groan. The head is hot and aches. Constipation or diarrhœa are present, and usually a slight husky cough exists. The bronchial tubes are affected. A well marked rash located on the inner side of the thighs makes its appearance in the majority of cases. As the disease advances these symptoms become aggravated, emaciation occurs, the coat looks dull, and there is present the characteristic odor of distemper. Often grave complications present themselves.

Distemper takes various clinical types:

(*a*) Respiratory.—This is the most common type. There is present various well marked catarrhal troubles. The conjunctiva is red, dry and swollen at first, but later excessive lachrymation; finally, a discharge of a muco-purulent character, part of which dries on the margin of the lids, causing them to adhere; photophobia exists. The animal sneezes constantly and there is a cough present, these conditions occurring as a result of a dry laryngo-tracheal mucous membrane, which causes an irritation. Soon a discharge from the nose and mouth takes place; this later may be ropy or frothy. Bronchitis exists, which is detected upon ausculation by the presence of ronchi, at first sonorous, later mucous. Often this form of distemper runs into broncho-pneumonia, which must be regarded as a complication. Laryngitis and pharyngitis are invariably present, and as the disease progresses opacity of the cornea, leucoma or even keratitis may occur.

(*b*) Gastro-intestinal.—Most often the first manifestation that presents itself is persistent vomiting; especially does this occur when the animal takes food. The buccal membrane is hot and dry, tongue furred, either white or brown, offensive breath; dyspepsia, accompanied by a diarrhœa, which is fœtid and frothy or mixed with blood and mucus. Occasionally constipation exists, but it is invariably followed by diarrhœa; abdomen is tucked up and colicky or constant pains occur. It is in this type of distemper that the temperature rises gradually; tympanitis exists; visible mucous membranes are pale or dirty. Excessive prostration and rapid emaciation are well marked in the gastro-intestinal type of distemper.

(*c*) Nervous.—This type may be divided into three forms. 1. Hydrophobic, characterized by the fiery eye, hot cranium, excitement, restlessness. Dog runs about, falling over objects or runs into the wall; acts just as if there was loss of vision; salivation occurs, often delirious, as is shown by the meaningless bark. This soon gives place to prostration, stupefaction, or even coma.

2. Chorea. Twitching of muscles in various parts of the body, especially the muscles of the jaw, head, limbs or thorax.

3. Paralytic. Often the hind limbs are the first affected by paralysis; may extend all over the body.

(*d*) Rheumatoid.—Is shown by violent pains or tenderness in any or every part of the muscular apparatus. If affected parts are touched, animal cries out. Pains are often more pronounced in the lumbar region, the shoulder or haunch. There is no change in the joints, but a regular muscular rheumatism accompanied by general signs of distemper.

(*e*) Integumentary.—The appearance of a rash upon the skin, especially on the inner sides of the thighs. At first it resembles a slight erythema, but soon vesicles form, which go through the regular stage to pustules, which burst and discharge, leaving little patches of ulceration, which finally heal by cicatrix. These pustules may coalesce, forming large ulcerating patches. This rash is quite characteristic of dog distemper, and in a slight degree it is present in the majority of cases. Sometimes a general exfoliative dermatitis occurs. Diagnosis is often difficult, especially in the earlier stages. The history of the case, catarrhal symptoms, excessive prostration, rise of temperature, are the chief symptoms upon which to base the diagnosis. If the rash accompanies these the case is invariably distemper.

Complications.—Most frequent is broncho-pneumonia, which condition appears as an extension of the bronchitis present. In fact it is difficult to determine the exact time at which the broncho-pneumonia starts. Lobar-pneumonia is another complication which occurs. It generally comes on quite suddenly at about the time that convalesence begins; it is rare that it occurs at the beginning of an attack of distemper. It frequently causes the death of the patient, coming on as it does when the vitality is so lowered that there is not strength enough left to combat any disease. In either of these conditions it will be noticed that the respirations are out of all proportion to the amount of lung tissue involved, no doubt due to the extreme weakness of the animal. In the lobar form of pneumonia the temperature goes up suddenly, whilst in the lobular form the temperature rises gradually and often in a very irregular manner. The physical signs are, in the lobular no change upon percussion except several inflammatory centres have united over a considerable portion of the lung substance, in which case of course certain dull centres may here and there appear; upon auscultation the signs of bronchitis are present with mucus or sub-crepitant râles. Generally both lungs are affected and the temperature is high and irregular. In lobar pneumonia the characteristic stages of engorgement, red and grey hepatization, appear. This complication occurs as a rule during the early convalescent period, and is ushered in with a well marked chill, followed by general fever, pain in side, furred tongue, scanty urine, which if examined for chlorides it will be found that they are decreased in quantity; cough, thick glary discharge from nose and mouth; discharge from nose may be tinged with blood, pulse full and quick, respiration hurried, and high regular temperature, averaging 105 degrees.

In first stage no particular change on percussion, but upon auscultation fine crepitation, which is probably due to the bubbling of air through the fluid with which the vesicles are filled. During the second stage or that of red hepatization, there is dullness over the solidified portion upon percussion, and upon auscultation bronchial breathing, absence of respiratory murmurs and of crepitation, whilst percussion in the third stage gives dullness over the solidified portion and ausculation shows the same condition as in the second stage, with the addition of mucus gurgling. These signs vary, as often all three stages of pneumonia may be in existence at the same time. Usually only one lung is affected, most often the right, but both may be involved.

Sometimes congestion and again œdema of the lungs occur as complications; they are often associated with pneumonia. Pleuritis is manifested by the pain, fixed thorax, cough, the friction sound synchronous with the breathing due to the grating of the dry pleural surfaces open each other. Fever, small, hard, rapid, "wiry" pulse—this often ends in hydrothorax. Of course, as a result of pneumonia, gangrene or abscess of the lungs may occur, which would terminate the life of the dog.

Cardiac Complications: Heart failure often manifests itself, but is rarely fatal except the pericardium is involved. As gastro-intestinal complications, I may mention pernicious vomiting, gastro-enteritis, intense abdominal pains, tympanites, hæmorrhage from stomach or bowels, perforation of intestines, jaundice due to duodenal catarrh.

The nervous symptoms that we must look upon with alarm are delirium, shown by the glassy eyes, meaningless bark, frightened or savage look, animal trying to hide or running about, stumbling over objects. This is often the result of a general inflammation of the coverings of the nerves and cord. Coma, due to the cerebro-spinal membranes becoming involved or even cerebral abscesses.

Nephritis, cystitis, hæmaturia are the common complications which occur in the urino-genital system. These are diagnosticated by finding pus, albumen, casts or blood in the urine. No doubt the animal is rendered more liable to complications during an attack of distemper because of the profound prostration doing away with the phagocytic action of the leucocytes, thus giving disease factors more chance to prey upon the tissues; at the same time 96 per cent. of the complications occurring, especially those of the respiratory tract, can be traced to undue exposure during the course of the disease or convalescence.

Differential Diagnosis. — Distemper and its complications must be distinguished from pneumonia, occurring as a primary disease. Coryza, bronchitis, simple diarrhœa, dysentery, dyspepsia, internal parasites, hydrophobia, excitement, chorea, paralysis. Sometimes, especially in young animals, distemper is ushered in by convulsions, which must not be mistaken for epilepsy or strychnia poisoning. Most eye troubles in the dog must be looked upon with suspicion unless they can be traced to a direct traumatism. Eczema or mange is liable to be mistaken, but we must examine the animal, and in the majority of cases there will be other lesions of distemper present.

Sequelæ.—Bronchiole, otitis, amaurosis, cataract, paralysis, chorea, chronic nephritis, chronic dyspepsia, loss of special senses (as hearing, smelling, seeing), keratitis, iritis, glaucoma corneal ulcers, staphyloma, deformities.

Duration and Prognosis.—In mild cases, from 8 to 10 days.

Severe cases three months. Average duration, 3 to 4 weeks. Prognosis depends upon the case, but if carefully treated and above all good hygienic surrroundings and nursing, it is good, but should always be guarded. In young and anæmic animals if the disease is generalized, especially when complications are present, the prognosis is grave. Strong, well-nourished dogs, and the disease localized, prognosis good. Death is due either to cerebral paralysis, pulmonary œdema, septicæmia or exhaustion. (*To be continued.*)

STATE WORK WITH INFECTIOUS DISEASES OF ANIMALS.

BY M. H. REYNOLDS, M. D., V. M., ST. ANTHONY PARK, MINN.

Presented at the annual meeting of the State Agricultural Society, at St. Paul, Jan. 10–11, 1900.

There are certain things which I wish to accomplish in the presentation of this paper. I wish to interest all members of the State Agricultural Society and the Minnesota Stock Breeders' Association in the work of the State Board of Health, and particularly in the work of the Veterinary Department. It is your work and done mainly for your business interests. Mistakes in this work may cost your interests hundreds of thousands of dollars. Good work may save as much. The success of veterinary sanitation depends on the support of stockmen and veterinarians. It is important that those most interested should be informed concerning the work to be done and methods of accomplishing it.

The Minnesota State Board of Health consists of nine members. The work has been divided into three departments: Secretary and general executive officer, bacteriological laboratory, and veterinary department.

Minnesota is credited with having one of the best if not the best state law relating to infectious diseases of domestic animals. There are certain points in this law which I wish to present in order that our work may be well understood.

Section 1, Chapter 233, gives authority to the state and various local boards to take such steps as they may deem necessary to control infectious diseases among domestic animals. These boards are given authority to regulate or prohibit the arrival in or departure from this state, and the towns, villages and cities thereof, of exposed or infected animals.

Section 2 reads as follows:

> "Any person that knows of, or has reason to suspect, the existence of any contagious or infectious disease in any domestic animal, shall forthwith give notice thereof to the local board of health of the town, village or city, where such animal is kept. Within twenty-four (24) hours after any local board of health shall receive notice that any domestic animal is infected with any such disease, or has been exposed thereto, it shall give notice thereof in writing to the state board of health."

Section 4 provides that no animals shall be killed by any of these boards until it has been adjudged to be affected with a contagious or infectious disease, either by a physician or veterinary surgeon properly selected and employed. The State Board is given authority to kill any animal which has been exposed, although not at that time affected with the disease, if in the judgment of this board it is necessary to do so.

Section 5 provides for the owner's protection, giving him authority under certain conditions to protest, demand postmortem by three experts, and the privilege of appraisal if the animal is found to be free from infectious diseases.

Section 7 provides that local boards must carry out and enforce orders and regulations of the State Board. It also gives the State Board authority to require two or more boards to act together when desirable.

Section 9 provides penalties. Suit may be brought in justice court. Fine may not be less than $25 nor more than $100, or imprisonment not less than 30 nor more than 90 days. This section also provides that any member of the local board of health neglecting or refusing to carry into effect the provisions of this law or the rules or regulations made by the State Board of Health shall be guilty of a misdemeanor punishable by a fine of not less than $25 nor more than $100, and each day's neglect or refusal constitutes a separate or independent misdemeanor.

Section 11 authorizes private owners whose stock are not affected to establish private quarantine in self-defense during the prevalence of an infectious disease among domestic animals, and makes such private quarantine legal. Permit me to explain at this point, as illustrating my thought, that members of this and similar associations should be personally interested and informed concerning this work. Section 11 was suggested by the Secretary of the Stock Breeders' Association, and I consider this one of the best points in the new law.

Section 1, Chapter 47, reads as follows:

> "It shall be the duty of the owner, or of any other person having in charge any swine that have died of any disease, immediately upon the fact of such death by disease coming to his knowledge, to bury the same at least three (3) feet below the surface of the ground, or burn the same so that the carcass is consumed. No person shall sell, give away or offer for sale any swine that have died of any disease, or have been killed on account of any disease. No person shall convey upon or along any public highway, or other public ground, or any private land, except his own, any diseased swine, or swine that have died of or have been slaughtered on account of any disease. It shall be unlawful for any person negligently or wilfully to allow his hogs or those under his control afflicted with any disease to escape his control or run at large."

Then follows a definition of penalties.

Glanders discussion omitted because already covered in the paper on "State Control of Glanders," by the same author, and recently published in this magazine.

Hog Cholera.—I have been somewhat disappointed with the progress we have made in the hog cholera work during 1899, and I feel that we are at a critical point in this work. Very satisfactory progress was made in 1897 and 1898, as I will soon show in a brief table. The difficulty this year has been to secure prompt reports of outbreaks, and this difficulty is due to an outcropping of natural human selfishness. Unless the State Board can secure prompt reports, the work of further reducing the infected area and financial losses will be greatly hindered. During the past quarter 39 townships in 19 counties have been reported as infected with hog cholera.

The following table gives a reasonably accurate survey of the situation during 1897, 1898 and 1899. The number of townships and financial losses for 1898 and 1899 should probably be somewhat larger. Please bear in mind that this work did not begin until 1897 and that 43 counties were then infected. It is not difficult to check a small outbreak of hog cholera and completely eradicate the disease, but 43 infected counties to deal with in a state as large as Minnesota is a very different proposition.

Year.	Counties infected.	Townships infected.	Loss.
1896	43	—	$1,000,000
1897	41	254	487,500
1898	32	93	325,000
1899	32	75	252,000

I wish to explain again that this table is not presented as being absolutely accurate, but it is as accurate as existing information allows. The relative proportion of losses and townships infected is probably very nearly correct. Other natural conditions have had something to do with this decrease in the infected area and financial losses. It is difficult to estimate just what proportion should be credited to the work of the State Board and what to natural conditions, but it is evident that these natural conditions do not alone account for the improved situation. The following is submitted as showing the needs of general information concerning hog cholera, and the necessity of vigorous work. Hog cholera appeared in a certain township of Stearns county during the early summer. The township chairman called on the owner soon afterwards and quarantined the hogs and pens, giving instructions as to what should be done. The chairman considered this owner a good citizen and did not watch things as closely as he would otherwise have done. We have since learned that this farmer lost quite a lot of hogs. They were left unburied, although the law expressly orders to the contrary. The outbreak in this township has since been around this man's farm in all directions, and has apparently been spread largely by dogs.

There are two adjoining townships in one of our most southern counties where hog cholera appeared last June. The chairman did nothing to check its spread and the outbreak became very general. They did not even obey the most explicit directions of the law. Three adjoining townships received infections from these two, but infected places were quarantined and in no case did the disease spread beyond the first quarantine. The two generally infected townships reaped a disastrous harvest. This would not be so bad if they had not been a constant source of danger for adjoining townships where the chairman and farmers were law abiding.

An interesting situation developed in connection with an outbreak in Polk and Red Lake counties. During the course of our work last season we learned that hogs had died on a certain farm during the previous fall. Dead hogs were thrown into Red Lake River in the northern part of Gentilly township. Red Lake River is reported as having a very sluggish stream, and in the early spring outbreaks appeared on a series of farms along this river, down stream. The disease was then carried from these farms to the surrounding country and a very serious outbreak of hog cholera was the result, and yet intelligent people say that hog cholera spreads in the air and in a great variety of mysterious ways, and hog cholera is just hog cholera and there is no use in attempting to do anything with it. The outbreak just referred to had its plain origin when the careless farmer threw dead hogs into the sluggish stream.

It is very probable that there have been few outbreaks of hog cholera in Minnesota where the method of spread was not simple and easily understood if we could only get the facts.

Mr. ————, of Greenville township, Dakota county, assisted a friend to load a car of hogs, and during this work he was in the stock car. After finishing the work he went home and took care of his own hogs. In about two weeks cholera broke out in his herd with no other cases in the vicinity, and yet he only walked around in the stock car and some railroad shipping pens.

Mr. G. went to Shakopee and attended a street fair. Bought seven young pigs. Took them home. In a few days these pigs were sick, some of them dying. In about two weeks the rest of his hogs were taken sick, and they all died. A neighbor helped Mr. G. move the pigs from the wagon in which they were brought to the sale over into Mr. G.'s wagon. He then went home and in about two weeks his hogs were dying with cholera.

Not very long ago a farmer living near Morgan, Redwood Co., shipped in some hogs from Olmsted Co., and, by the way, contrary to the regulations of the State Board of Health. These imported hogs infected those previously on the place and resulted in an oubreak of cholera.

A farmer living near Sleepy Eye sold some hogs to a buyer at that place. The hogs were placed in the shipping pens, and, contrary to the regulations of the State Board of Health, sold to another farmer, who took them back to the country. These hogs were free from the disease when the first sale was made. No cholera had existed in the neighborhood from which they came. After the usual period of about two weeks they became sick and were dying with cholera. Result, another outbreak of cholera. It is very evident that these hogs were infected in the railroad shipping pens.

Suppose a case: Hog cholera appears in a previously uninfected district. The outbreak is confined to two or three farms. In a reasonably intelligent and law-abiding neighborhood this outbreak can be quarantined with reasonable certainty of complete success, providing the chairman posts quarantine placards, visits the neighbors, gives all the information at hand concerning the nature of the disease, how it spreads, etc., urges owners whose hogs are not infected to post quarantine cards, etc.

But suppose the chairman takes no interest; suppose the owner leaves carcasses of hogs unburied after a representative of the State Board of Health has left. Dogs are numerous. Neighbors refuse to accept suggestions concerning dogs and other sources of spread; visitors pay no attention to the notice cards—quarantine is a failure. The disease spreads rapidly, not necessarily because the theory of quarantine is wrong, but merely because of the listlessness and general uselessness of the chairman and the stubbornness and selfishness of the owner and the indifference of the neighbors. "Render to Cæsar the things that are Cæsar's."

That it is possible to maintain successful farm quarantine for hog cholera has been demonstrated over and over again during the past three years. Whether individual farm quarantine is successful or not depends largely upon the township supervisors and the individual farmers. The mere fact that individual farm quarantine has not been entirely successful in many townships does not contradict this statement. The thing for the farmers of Minnesota to do is to let go of this idea of finding a medical cure for hog cholera and undertake an intelligent prevention. It is probable that a satisfactory serum for vaccination will be developed in the near future, but that alone will not solve the problem by any means or do away with the necessity of sanitary measures.

The following extracts from the "Circular of Information for Local Health Officers," together with the "Hog Cholera" quarantine and the owners' "Notice" cards, will give some information concerning the present methods of dealing with this disease.

When hogs begin to sicken and die during the prevalence of hog cholera the disease should be reported to the local health officer or chairman of the town board, and quarantine should be established at once. It is a simple matter to release quarantine, and should it be proven that the disease is not hog cholera, no harm has been done by such quarantine.

All health officers and acting health officers are therefore instructed to see that suspicious outbreaks of disease among hogs are properly quarantined.

The health officer should explain to the owner or keeper the nature and conditions of quarantine, and see that the conditions are rigidly enforced until quarantine is released.

Hog cholera is often spread by water in small streams and lakes, and for this reason hogs must not be buried near any such lake or water course.

Dogs and poultry should not be allowed access to yards or pens where hogs are confined during the hog cholera season, and pigeons and crows should be shot or otherwise frightened away because of danger that they may spread the disease.

The health officer or inspector should always wear overalls and overshoes or rubbers when going among diseased hogs. These overalls and overshoes or rubbers should always be kept a safe distance from healthy hogs and from other agents which might convey the disease.

Quarantine cards must not be removed until six months after the last hog has died or recovered, and the premises disinfected in a way satisfactory to the local board of health.

Farmers should be urged to dispose of marketable hogs for slaughter as soon as suspected hog cholera appears in a neighborhood.

Neighbors, on whose farms the disease has not yet appeared, should never be allowed to help haul the hogs from infected farms, as there is great danger that the disease will be spread from farm to farm by such action.

Tuberculosis :—I wish to make a special effort at this meeting to interest members of these associations in the subject of "Bovine Tuberculosis," particularly as affecting the cattle breeding interests. The problem is a very large one and extremely difficult. There is no possibility of question but that tuberculosis prevails among pure bred cattle. This needs no further demonstration, neither is there any question as to the reliability of tuberculin as a means of diagnosis. This has also been demonstrated beyond possibility of reasonable question. It is practically settled that the germ causing bovine tuberculosis and the germ causing human tuberculosis are identical as to species and differ only as modified by slightly different environments in different animal bodies. These and a host of other questions need not trouble us. The difficult question is, what to do about it? What steps to take and how to take them in order that the spread of tuberculosis among pure bred cattle can be lessened or controlled, without at the same time causing the breeder great financial losses and endangering the cattle breeding interests of the State, which it is our business to foster rather than injure. I will have some suggestions to make later concerning this problem.

WHAT OTHER PUBLIC AUTHORITIES ARE DOING.

Pennsylvania tests cattle at the expense of the State, furnishing veterinarian and tuberculin. State pays partial valuation for condemned cattle. State veterinarian reports that when this work was commenced three years ago the task seemed almost hopeless. Statistics show constant diminution of reacting cattle and the inference seems reasonable that tuberculosis is less prevalent in that State than when the work began. Up to June 1, 1897, the average percentage had been 20.4. From this time until January, 1898, 13.73 per cent. During 1898, 14,437 cattle were tested in this way, 1348 reacted—12.9 per cent.

Pennsylvania tests only upon application, and not only that but application must show reasonable evidence that tuberculosis exists in the herd. Their annual report indicates that applications are much more numerous than can be granted. The owner is required to submit reasons for making the examination. He must make application for test and agree to do all in his power to keep the herd free from tuberculosis in the future. Quite a different situation from what we have here in the West

Pennsylvania prohibits the importation of dairy or breeding cattle, except upon tuberculin test. No compensation allowed for cattle imported contrary to law.

Massachusetts is now appropriating about $75,000 annually for the work with infectious diseases, a very large proportion of which is used in the work with bovine tuberculosis. Pennsylvania has an annual appropriation of about $40,000 for dealing with infectious diseases of domestic animals. Of this appropriation a very large portion, about $28,000, is used for dealing with bovine tuberculosis.

Illinois has recently put into effect an order prohibiting the importation of untested cattle for breeding or dairy purposes. Iowa is making quite an active stir concerning this problem, although she may not take any radical step at this time. Yesterday a tuberculosis convention was called to order in Des Moines for the express purpose of discussing the problems connected with bovine tuberculosis and to recommend such measures as seem wise. Prominent speakers from various parts of the United States were on the programme. The State Veterinary Association of Iowa is in session to-day and to-morrow, and it is the expressed purpose of this association to bring influence to bear upon the legislature looking toward legislation similar to that in effect in other States.*

In view of recent developments in certain of the Eastern States and among our neighboring States here in the West it may possibly become necessary for Minnesota to take some radical action concerning the importation of dairy and breeding cattle. I have hitherto taken the position, so far as Minnesota is concerned, that so long as cattle in neighboring States were probably no worse affected with tuberculosis than our own, we were not justified in prohibiting the importation of untested cattle. This proposition came up in Wisconsin something like a year ago, and I made a similar proposition to the Wisconsin representatives, that so long as Wisconsin was no better in this respect than her neighboring States, there would be nothing gained by such a measure. But the problem has assumed a different phase. When our neighboring States adopt measures similar to those now in force in Illinois, Minnesota will be compelled to do likewise or become a dumping ground for tuberculous cattle. A considerable number of cattle, largely dairy cows, are shipped each year from this State to Illinois. Nearly all of these cattle are tested before shipment. The healthy cattle are shipped into Illinois; the tuberculous cattle are left on our hands. If dairy or breeding cattle are tested in Iowa with a view to shipping into Illinois, the same thing occurs; the healthy cattle are shipped into Illinois, the diseased cattle may be moved over the line into Minnesota.

During the past three months there have been tested in this state 2768 cattle of all kinds, of which 135 reacted and 25 were killed; an average of 5.1 reactions. But the majority of these were not breeding herds. All of the dairy and breeding herds belonging to state institutions in Minnesota are now being tested regularly, and the officers of these various institutions are now in sympathy with this movement, although it was rather difficult to get the work started.

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* Since this paper was written Missouri has issued a proclamatiou similar to that now in force in Illinois.

The following table is taken from our Experiment Station Bulletin, No. 51, and is quite suggestive as to the influence concerning the prevalence of this disease among natives, high grades, pure breds, city dairies, and in the various conditions of stables:

TABLE XLVIII.—PREVALENCE ACCORDING TO CLASS AND CONDITION.

TABLE SUMMARY:—GREATEST PREVALENCE AMONG "PURE BREDS," "CITY DAIRIES," "POOR CONDITION OF STABLE" AND "POOR VENTILATION." FARM CONDITIONS, GOOD STABLES AND VENTILATION DO NOT PREVENT INFECTION, HOWEVER.

	CLASS.	Number of herds tested.	Number animals tested.	Number re-actions.	Per cent. tuber-culous.
1	Natives	137	2839	223	7.8
2	High Grades	5	157	17	10.8
3	Pure breds	6	258	43	16.6
4	Farm herds	38	694	99	*14.2 (7.8)
5	City dairy herds	108	2736	284	10.4
6	In "good" general condition of stable	57	1370	139	*10.1 (6.8)
7	In "fair" condition of stables	59	1140	83	7.28
8	In "poor" condition of stables	32	864	165	19.1
9	With "good" ventilation . .	45	1011	99	*9.8 (5)
10	With "fair" ventilation . . .	45	1087	67	6.16
11	With "poor" ventilation . . .	48	1210	201	16.6

NOTE.—Fifty-five of these tuberculous animals in each case—(groups 4, 6 and *9) were from the same two herds. Eliminating these two herds from groups 4, 6 and 9 the percentages are reduced respectively to 7.8, 6.8 and 5.

This data was collected in the most impartial way that could be devised and with the sole view of investigation. This showing is what any student of sanitary matters should expect. The mere fact that the percentage of tuberculosis is highest in pure bred herds should not suggest that men should not breed pure bred cattle. It only suggests that men should not establish herds upon tuberculous foundations. They should breed healthy pure bred cattle, not tuberculous pure bred cattle. The figures here given should be taken as percentages for certain classes, and not as representing the entire cattle stock of Minnesota.

A careful experiment, which was conducted on a rather large scale by the Experiment Station several years ago, demonstrated quite fully that the tuberculin test was practically without effect upon dairy cows in full flow of milk, or upon fattening steers; and the effect upon tuberculous cattle was favorable rather than otherwise.

I wish to suggest a conference committee, consisting of five representative breeders of the State Agricultural Society and Stock Breeders' Association, to confer with representatives of the State Board of Health and Experiment Station. Let representatives of these two societies be experienced breeders, men who are personally and financially interested in a proper and safe solution of the problem.

What will Minnesota do? What is the wish of the stockmen of Minnesota concerning this great problem? Is it worth our serious consideration? What will we do about it?

CHROMIC ACID.

By W. C. Hanawalt, V. S.

Read before Illinois State Veterinary Medical Association, February 21, 1900.

Mr. President and Brother Doctors: Believing that chromic acid is a more important drug than most people deem it to be, and also believing that our materia medica does not give the remedy the amount of attention it deserves, is my excuse for writing this article.

Finlay Dun gave it about one and one-half inches of space, which would lead one to suppose its importance about the same.

The sixteenth edition of the U. S. P. gives the best therapy of the agent that I have seen in print and to it I would respectfully refer you as to its medicinal uses. The uses to which I shall call your attention are those to which I myself have used it successfully in practice.

During the summer of 1890 I was called to treat a four-year-old gray filly for fistula. The animal was very weak and greatly emaciated and had the largest fistulous tumefaction I ever saw. In fact, this tumefaction was so large I would fear the loss of your respect for my truthfulness should I give its dimensions. I recommended six weeks' rest with good care and feed and 30 grains of sulphate quin. with tr. fe. chlor. three times a day; as I told the owner, "to get something to work on besides the fistula."

This beast had been treated (?) one year by a "Thistlo" horse doctor and pronounced incurable previous to my services. After the horse had recuperated sufficiently I began the treatment as follows: With a silver director I probed the sinuses, laid them open with the bistoury, made a swab by wrapping white muslin projecting over the end of a stick, dipped it in the solution of chromic acid, 1 part and aqua 500 parts, and with this entered the fissures and sinuses, applying freely the diluted acid to the diseased parts.

After a few days the tissues parted, the diseased from the healthy part, leaving a clean, granulating surface, which, with the aid of the "white lotion," soon healed without a scar or blemish. That I may not be misunderstood I will say that it took about eight weeks to effect this cure, and some new sinuses were treated in the aforesaid manner as they made their appearance from time to time.

Case II. A bay gelding, eight years old, used as a dray horse, acquired a sore on his back from the backband of the harness chafing it.

This sore refused to heal for the remedies generally used for such abrasions; then my attention was called to it and I found a red, spongy, warty, quick-growing tumor which I could not give any special classification at the time, and even now would hardly dare to try to classify it.

To this tumor, after breaking all the tender substance down with my thumb nail, I applied freely the chromic acid solution as given above and the result was a speedy, permanent cure without any further treatment whatever.

I might mention numbers of these trivial cases, but this, I believe, is sufficient for these minor occasions.

Case III was another patient treated by one of those "Thistlo" doctors for one year without success. This was a bay filly, 3 years old, with a very simple looking fistula with a sinus running down along the anterior border of the spinous process of the second dorsal vertebræ, and involving the branch of the ligamentum unchea.

It discharged a granular, whitish, fœtid pus, about the consistency of paste. I injected into this sinus, with force enough to make it reach all the cavities, about two ounces of dilute chromic acid. I held this in with considerable pressure for about five minutes, when I let the pressure off and let the surplus acid run out and away. After about six days I made an exit at the bottom of this cavity for drainage, and it made a nice recovery and the fœtor was soon dispelled.

I think these cases will suffice to show the great value and somewhat the line of therapy to which chromic acid may be used with success and advantage. A few general remarks now and I will leave the subject to your consideration. Great care must be taken in the use of this drug, that it does not injure you, my dear doctors, for the strength I have recommended would quickly burn your flesh severely, almost on instant contact. But still I am not so exact in its dilution when I use it, for very frequently I make the dilution by guess, and have never had any mishaps, save one instance where an attendant wiped the solution from a sore which I treated and would not wash his hands as I directed him. Soon after his hands were covered with blisters about the size of a large hulled pea. I applied glycerine to his hands, and they were soon well—again showing its great antiseptic powers.

I need not caution any one who reads the therapy in the U. S. P. not to connect chromic acid with glycerine, for he will see it is thus a violent explosive. I use this agent anywhere where I want to produce a quick slough, for it leaves a nice, smooth, clean, healthy granulating surface that heals very readily. It is almost painless in action and hence is better in many places than the knife and far better than such caustics as arsenic, caustic pot., butter of antimony, corrosive sub., etc.

I have thought of this drug in connection with the treatment of actinomycosis, but have never tried it, but I firmly believe it would prove successful in ninety per cent. of cases. I find in treating actinomycosis we want a remedy that will penetrate fully three-sixteenths of an inch into the hardened tissues to make a successful cure, and this is the drug best suited, it would seem.

I have dissected actinomycotic tumors from a great many cattle, have dissected many a fistula and have once removed a piece of the jugular vein with success, and indeed am rather fond of surgery, but for the places and diseases for which I have recommended chromic acid I prefer it to the knife, in most cases.

I have thought of chromic acid as a possible remedy for lice, both on animals and fowls, and as a wash for the walls of houses for the same and as a disinfectant and deodorizer. Try it.

REPORTS OF CASES.

"*Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.*"

SOMETHING THAT MAY BE OF INTEREST TO THE YOUNGER PRACTITIONER.

By J. F. De Vine, D.V.S., Rhinebeck, N. Y.

In recording the following cases, I do not do so with the idea that it is of any interest to the older members of the profession, who have had many similar cases, and were too busy, or perhaps, too indolent to write them up, and send them to our journals, that we who are still children might know something about the circumstances which accompany these cases that are "a little off color." I know there are students in our senior classes to-day who are doing as I have done, after pondering over Fleming's or some other foreign work, will lay the book aside, and say to themselves: "There is no use of reading up these things, we never meet any of them in this country," but we do have them, the older practitioner is neglectful, and the younger too timid to record them.

Anidian Monster.

On Dec. 27, 1899, I was called to J. S. Huyler's, at Hyde Park, N. Y., to look over a herd of cattle which had been carred in from the West. As I passed along behind the herd I noticed a portion of the placenta hanging from one of the cows. On questioning the attendant I found that she had calved two days previous, but the retained placenta did not occasion much attention, the fœtus being so small. After I had loosened the fœtal membranes from the fundus and left cornua of the uterus, it still was very adhesive to the floor of the right cornua. After manipulating it a few minutes I found that it felt very bulky, and that it had a diffuse attachment instead of a localized one, which, however, I loosened, causing very little hæmorrhage. It consisted of a fleshy mass, dark red in color, and weighed about four pounds; its shape was much like a robin's nest, having a depression in the centre or top and containing a turbid fluid, and what appeared to be the fœtal membranes, nourished by an imperfect umbilical cord.

The after treatment consisted of a 2 per cent. creolin douche twice daily for two days, when the os had closed and recovery was complete.

Bovine Monstrosity.

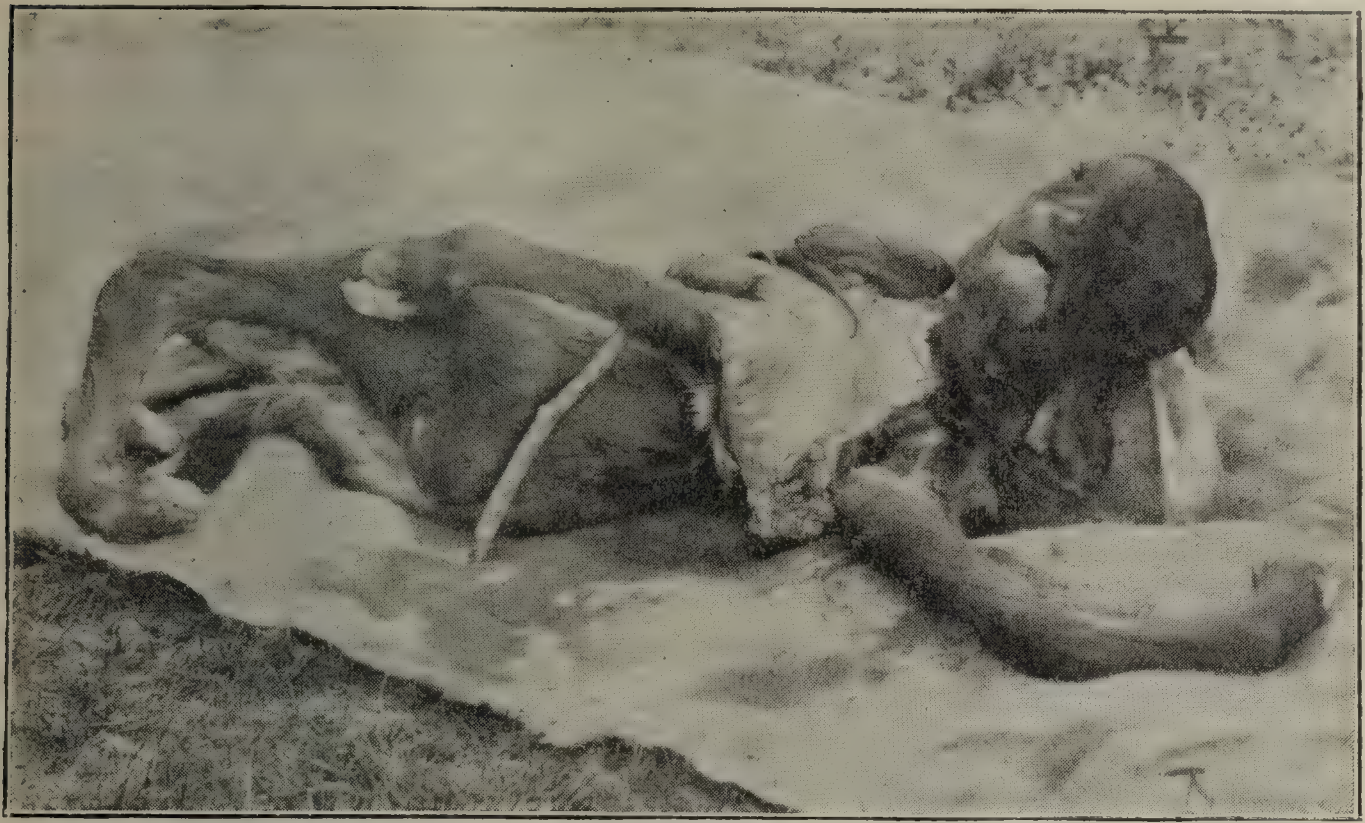
On April 2d, a client came to my office and told me that one of his cows had given birth the day before to a calf which he thought might be of interest to me.

I drove to his place that afternoon and after looking the individual over I had it photographed, laying it on its side and taking a ventral and dorsal view, which I enclose. I then placed his "nibs" on one side and Fleming's on the other, and after guessing a half-hour or more I called it a Perosomus Horridus.

I will now describe it as best I can.

As will be seen by the accompanying photo, there was a complete torsion of the body, the hocks being replaced by two perfect knees. The cranial cavity was twice its natural size, the meninges protruding through a large opening at base of skull, containing a serous fluid with a few floating particles of white and gray matter.

The thoracic cavity was devoid of lungs; the abdominal cavity presented a small vacuum, all of the viscera protruding



through the umbilicus and having attachments to the right thoracic region and shoulder, all of which appeared normal, excepting the kidneys, there being only one, which was somewhat hypertrophied.

STRICTURE OF THE URETHRA IN A FOX-TERRIER DOG.

By Roscoe R. Bell, D. V. S., Brooklyn, N. Y.

A large fox-terrier dog was admitted to the hospital with the history that he made persistent efforts to urinate, but that only a small quantity passed after considerable straining. He was placed under observation, and it was found that he would stand stretched as though endeavoring to pass urine for ten or fifteen minutes, when a few drops would be expelled. The catheter came in contact with an obstruction just before turning the ischial arch, and the smallest flexible probe would go no further. An operation was decided upon, but his owner being absent from the city, it could not be undertaken until her consent was obtained, as the prospect was that an artificial opening would have to be made on the vesical side of the stricture, which it was believed to be. While waiting for an answer from the owner, the dog collapsed in great pain, and laid upon his side groaning and howling. Knowing that his bladder had ruptured he was chloroformed, and a post-mortem held. The walls of the bladder were black with inflammation, thicker than normal, and exhibiting a tear an inch long in its side. At the point which had checked the entrance of the catheter was found a stricture almost occluding the lumen of the canal, and pressed against by urinary salts. There was apparently but one line of treatment: an artificial opening, which if undertaken earlier would probably have been successful.

EXTRACTS FROM EXCHANGES.

FRENCH REVIEW.

Lameness Following an Abscess of the Mastoido-Humeralis [*By Mr. Carougeau*].—A heavy draught horse had an abscess of the left mastoido-humeralis, for which he was treated, and recovered in the usual length of time. Some two years later, he gradually became very lame in the left fore leg. The pain was very great; the animal could scarcely put any weight on the lame leg, walking on three legs, and on the lower part of the neck, a little above the point of the shoulder, there was a slight swelling, which to be carefully examined required means of control (twitch). The left mastoido-humeralis was invaded with a very thick induration measuring 20 centimetres in length and occupying the place where the abscess removed two years before had existed. This indurated tissue was the cause of the lameness, pressing on the nerves of the region. Its removal was essential to recovery. The animal was cast, the parts disinfected, a large incision made through the skin, and the indurated portion of the muscle excised, carefully avoiding the blood vessels of the jugular groove, which were readily seen at the bottom of the wound. The portion removed was made of very hard tissue, formed of very dense connective bands, and elastic fibres. The wound was closed with sutures and treated with antiseptics. Union took place by first intention. The condition of the patient after the operation was very suggestive; once relieved of his means of restraint, the animal was considerably relieved of his lameness, and could use his leg in standing or walking. He resumed work in ten days.—(*Journ. de Zoötech.*)

Comminuted Fracture of the Ischium in a Horse [*By MM. Mather and Morey*]. — Two weeks previous this large Percheron fell on his right side upon a rock and severely bruised himself. He presents at the point of the ischial region a swelling diffused over the right hip, with a small wound, from which escapes reddish serosity, having a strong odor, although not fœtid. Through this wound two fistulous tracts open on the outside; one of these is horizontal and runs towards the ischium; the other is vertical. This second tract is freely divided and connected with the horizontal one, and the wound thoroughly irrigated with phenic solution, 3 per cent. After five days a small splinter of bone is found loose in the wound. After a few days, as the suppuration seems to increase, the wound is again explored with a grooved probe and the finger, when a piece of bone as big as a small nut is detected with others smaller. All those are extracted, the cavity thoroughly curetted and aseptic gauze packed in the wound. The granulations developed rapidly, the cavity was soon filled, and the suppuration gradually diminishing, recovery was complete after about one month's treatment.—(*Journ. de Zöotech.*)

NECROSIS OF THE CONCHA—DEEP FISTULA—OPERATION—RECOVERY [*By MM. Cadéac and Laravoire*].—A mare was bitten on the left ear and the injury had apparently recovered, when, two weeks later, the organ became swollen and so painful that the mare could not be used. An abscess had formed, which on being opened gave escape to an oily yellowish fluid mixed with cartilaginous pieces. Notwithstanding careful attention and antiseptic treatment, the wound kept up discharging, and a fistulous tract formed, from which flowed the same oily liquid. The ear was much deformed, its point drooping gave it the aspect of the ear of a dog. As, however, the process of necrosis was keeping up and as the animal had become very irritable and difficult to handle, an operation was decided upon, in which the central focus of suppuration was freely exposed, and all the necrotic portions of the concha were removed and scraped, and a clean wound left, which was treated with solutions of bichloride of mercury and iodoform. Recovery took place rapidly, the animal remaining with an external ear smaller than on the other side.—(*Journ de Zöotech.*)

VESICAL CALCULI IN A SLUT [*By L. Colin*].—For a short time this little dog, which is very old, eats very little, has chills and breathes asthmatically, and one morning she was found dead. At the post-mortem, it was found that the lungs were emphysematous, the liver slightly cirrhotic, spleen healthy, the kidneys firm, quite red and without calculi. The bladder was empty, with mucous membrane somewhat injected, purplish towards its neck, which contains six calculi, the largest of which was as big as a large hazel nut. The others were smaller, of large pea size. Three others are also found as small as the head of a pin. The urethra was free, and could allow only very small gravel to pass.—(*Rec. de Med. Vet.*)

ITALIAN REVIEW.

DISTOKIA DUE TO INTRAPELVIC ABSCESS [*By Dr. Augusto Ott*].—This uncommon case is interesting on account of the fact that for fear of septic peritonitis, an exploration has not been made to ascertain the nature of the cause of the difficulty. The author was called to attend a cow which had had five calves before, always without trouble, and this time was unable to deliver. The fœtus was in anterior presentation, vertebro-sacral position, but its expulsion was prevented by a large swelling, which from about 25 centimetres from the vulva extended forward, and, as it proved to be at the autopsy, as far as the psoas region. Embryotomy was almost impossible, and as the cow was losing ground, it was decided to have her killed. At the autopsy the fœtus was found in the uterus, and alongside of it on the left an enormous swelling, ovoid in shape, 50 centimetres in length, and 25 on its transversal axis, it containing clear yellow, creamy granular pus. The corresponding ilio-pectineal crest was diseased, the peritoneum surrounding adherent by circumscribed spots of inflammation.—(*Nuovo Ercolani.*)

ENORMOUS CERVICAL TUMOR IN A HORSE [*By Dr. G. Gambarotto*].—At the clinic of the Veterinary School of Turin, an old gray horse was presented, which on the left side of the upper part of the neck, in the triangle of Viborg, presented an enormous growth which had begun by a small nodule, and was now twice as large as a man's head. On its external surface it was here and there ulcerated, and presented various colors on different places. It looked like melanosis in some parts. It being pedunculated, its removal with elastic ligature was decided upon, and a strong rubber tube was applied. After a few days this tube was changed, and the slough then took place without hæmorrhage. The tumor weighed 5355 grammes, measured 0.16 centimetres in one diameter, 0.49 on the other. Under the microscope it proved to be a melanotic fibrous lipoma.—(*Il Moderno Zooiatro.*)

RUPTURE OF THE SPLENIC VEIN IN A HORSE [*By Dr. A.

Serra].—Called to attend a horse that exhibited very violent pains, he found him attended by an empiric, but presenting such symptoms that he informed the owner that the subject was dying, and waited only to make the post-mortem. On opening the abdomen a large quantity of blood escaped from it. The spleen was found the seat of markedly developed varicose condition of the splenic vein, which at a given point had given way and produced a fatal hæmorrhage. The case is exceedingly rare, and according to the author, no similar one has ever been recorded.—(*Il Moderno Zooiatro.*)

TREATMENT OF PURULENT MAMMITIS [*By Th. Magnus*].—Frequent among cows kept in the fields, this disease is accompanied with loss of flesh, which is very detrimental to those animals. The diseased process increases from the difficulty of rational treatment, the animals being kept loose and not seen for two or three days. To facilitate the escape of pus, the author has resorted, with success, to a treatment which has but little objections, the loss of the milky secretion being of secondary consideration in animals which are raised for beef. He amputates the teat, at its base, and opens freely the galactoferus sinuses. There is but little hæmorrhage, and if it keeps up, it is stopped by plugging. Partial amputation is not as successful as when the entire teat is cut off. After a while, the swelling of the udder subsides and the animal takes on flesh.—(*Giorg. de la reale Soc. Vet.*, *Bulletin Veter.*)

PARALDEHIDE IN VETERINARY PRACTICE [*By Th. Magnus*].—By its chemical properties, paraldehide stands between alcohol and ether. Diluted in 10 parts of water, or mixed with glycerine, it has a special odor and acts as an antiseptic, hypnotic and slightly diuretic. An animal is put to sleep with it with difficulty ; it acts specially on sensitive nerves, less so on motors. 30 grammes given in capsules will permit the painless operation of castration done standing. Another animal which received 75 grammes was trephined without any pain. The operation lasted 15 minutes. The horse exhibited only slight depression and wabbling gait afterward, but those disappeared after an hour. In a fistula of the withers, where 90 grammes had been given, an incision was made 14 inches in length, and two dorsal vertebræ scraped without pain. After 15 minutes the odor of the drug was detected in the expired air. The author prefers it to cocaine when the field of the operation is quite large and the manipulations are to last some time.—(*La Riforma Veterin. Bullet. Vet.*)

A CASE OF CYSTICERCUS BOVIS [*By Dr. Ricc. Bardoni*].—In 17 years of practice in public abattoirs, this is the second case observed by the author. He observed the first in a steer, the second in a calf. The vesicles were very abundant in the heart; in fact, literally stuffed with them. These were also in the deep muscles of the thigh, the masseters, those of the neck and of the scapular regions. Most careful examination failed to find any in the brain, liver, spleen or lungs. The carcass was destroyed.—(*Clinic. Veterin.*)

DEPARTMENT OF SURGERY.

BY L. A. AND E. MERILLAT,
of the McKillip Veterinary College, Chicago, Ill.

ABDOMINAL SURGERY.

There are a number of operations included in abdominal surgery that are frequently indicated in domestic animals; and when the opportunity presents itself, the veterinarian should not neglect to take advantage of such favorable and convenient means of bettering and ameliorating the condition of his patient by surgical interference. In large domestic animals (equine and bovine species) such operations are seldom attempted, owing to the lack of proper methods of restraint. Such animals as the horse or ox, with their well developed muscular system, and their natural propensity, tendency and determination to fight restraints, which are the chief objections to such procedures, are generally considered subjects not adapted for favorable results from such operations. Prior to the correct understanding of aseptic measures in such instances, the general belief was that the peritoneum of these animals was very susceptible to infection, and any surgery that involved it should not be undertaken; but this is not the case; if the proper methods of restraint could be applied to these patients, laparotomy would be as common in veterinary surgery as it is in human surgery; but so long as the veterinarian has no substitute for, or appliance to take the place of, the straight-jacket, sleeves, sheet or good, strong, trustworthy attendant, just so long will the results of such operations continue to be unfavorable, but when convenient means of securing these patients are obtained, the percentage of recoveries will be as encouraging as if the patients in question were of the *genus homo*, or some other *small genera*. In these operations it is necessary that the patient be kept quiet for some time after the operation, in order to get desirable results from them; so it can be readily understood that there are great disadvantages to be overcome in restraining such animals as the horse, whose strength and conformation make him a difficult animal to handle in a recumbent position, and when necessity demands that he be kept quiet and in one position for some length of time; besides, we know that such animals should not be kept in one recumbent position for more than five or six consecutive hours without expecting additional injury or complications to follow. Every attempt of the patient to change his position, even when assisted, inflicts severe injury to the wound; tearing the stitches, pulling the edges of the wound apart, and favoring infection. It is easy to comprehend why such operations as laparotomy and celiotomy are not more frequently performed by veterinarians; yet with all the disadvantages and contra-indications that can be enumerated against such surgical interference, there are, nevertheless, instances when such operations should not be avoided, even though the percentage of recovery is low.

In the horse, the indications for abdominal surgery usually follow accidental wounds that penetrate the abdomen and injure some of the organs which it contains. These wounds require surgical attention for the purpose of removing foreign substances which may be introduced into the wound at the time of the accident; to irrigate, cleanse and make the wound aseptic, or, to ascertain the extent of the wound, and to repair the damage done to the parts involved, and to establish drainage; besides, there are conditions that interfere with normal functions and produce pain (celialgia and enteralgia); abscesses resulting from traumatisms; pathological and anatomical structures to be removed from the abdominal cavity, together with other conditions which are only revealed by opening the abdominal cavity (celiotomy), a procedure to which the veterinarian seldom resorts.

For the sake of convenience we shall divide the indications for abdominal surgery in domestic animals into two classes:

1. *Indications for abdominal surgery* in which the cause of the condition requiring surgical attention can be determined without exploring the abdominal cavity; under this classification we will consider the following conditions common to the horse, viz.:

(*a*) Punctures into the abdomen of runaway and unmanageable horses that plunge into fences, vehicles and pointed objects which penetrate the cavity, inflicting wounds complicated by visceral injury; punctures resulting from broken ribs which often follows falls, kicks and other forcible blows; horses gored by cattle in pastures, barnyards and stables used in common, and gunshot wounds in which the abdominal cavity has been entered.

(*b*) Abscesses resulting from traumatism and those which follow "tapping" (paracentesis) of the abdominal cavity or punctures of any kind which have not been properly treated.

(*c*) Strangulated herniæ, and herniæ containing a loop of intestine (enterocele); castration of ridgeling (cryptorchids); spaying of mares (ovariotomy), and the removal of a fœtus which cannot be delivered otherwise (Cæsarean section).

2. *Indications for abdominal surgery* in which the condition requiring surgical attention cannot be ascertained without exploring the abdominal cavity; under this classification the following conditions may be mentioned:

(*a*) Extra-uterine pregnancy (celiocyesis); tumors in the abdomen (celioncus), or in the intestines (enteroncus).

(*b*) Rupture of intestines (enterorrhesis); suppuration in the abdominal cavity (celiophyosis); toxemia from contents of intestinal tract (enterosepsis), and dropsy of the peritoneum (ascites).

(*c*) Volvulus, intussusception or invagination; occlusion by accumulation of fæcal matter in the intestines (coprostasis), and strictures of the intestines (enterostenosis).

(*d*) Pain in the abdomen (celialgia), or in the intestines (enteralgia); disease of intestines (enterosis); floating kidney (nephroptosis); foreign bodies, calculi and concretions in the intestines, and strangulated herniæ.

In ruminants, the indications for abdominal surgery are more common and the results following such operations are more favorable than in the horse, and no veterinarian should hesitate to undertake such operations as laparotomy or celiotomy when the opportunity presents itself, for the effects resulting from such operations are usually flattering. The conditions which require surgical attention in the ox may be classified as in the horse.

1. *Conditions* which can be determined without exploration, may be considered as follows:

(*a*) Accidental wounds, punctures and gunshot wounds which penetrate the abdomen.

(*b*) Abscesses that result from tapping, punctures and wounds that have not been treated properly.

(*c*) Impactions of the rumen that cannot be evacuated without a surgical operation (rumenotomy).

(*d*) Strangulated hernia, enterocele, cryptorchid, ovariotomy and Cæsarean section.

2. *Conditions* which cannot be ascertained without opening the abdomen and exploring, may be classed as follows:

(*a*) Tumors located in the abdomen or intestines and extra-uterine pregnancy.

(*b*) Rupture of intestines, suppuration in the abdomen, toxemia from contents of the intestines and ascites.

(*c*) Intussusception, invagination, volvulus, coprostasis, occlusion, strictures and dilatations are conditions that are very common in the ox, and which can be treated more successfully than in the horse. *Foreign bodies*, such as clothing, blankets and other substances which cannot be disintegrated by the process of digestion; *bezoars*, which are intestinal calculi common to ruminants, and *hair balls* (ægagropilæ), which are formed in the intestinal tract by the accumulation of hair swallowed by the animals during the time that they are shedding, are often found in the intestines of ruminants, and can be located by an exploration of the abdominal cavity.

In carnivora, abdominal surgery is more frequently indicated than in any other domestic animals, and, in fact, are subjected to more surgical operations requiring laparotomy than either man or domestic animals. Most of the operations included in human abdominal surgery are tried, perfected and improved by using the canine species as a subject; and many of the blessings that man enjoys from the relief of pain, distress and oppression alleviated by surgical measures, are the results of operations whose technique has been improved, substantiated and simplified by such experimental surgery.

The veterinary surgeon should never neglect or refuse to operate upon a dog or cat when such operations are indicated, for prompt and vigorous action in such cases will often save the life of the patient, and elevate the operator in the estimation of his client. We shall class the conditions in the dog, that require surgical attention in the same manner as before, viz.:—

1. *Conditions requiring surgical attention* that can be determined without laparotomy, and which can be enumerated as follows:

(*a*) Punctures resulting from chases through clearings, thickets or coppice; wounds inflicted by teeth of other carnivora; dogs gored by cattle, and gunshot wounds.

(*b*) Foreign bodies that are known to have been swallowed, and not passed with the fæces or vomited; these may be marbles, pebbles, coins, balls, nails, corks, sticks or anything with which the animal is in the habit of playing.

(*c*) Herniæ in which the radical operation is indicated, and those which cannot be reduced without surgical interference; spaying of bitches, and the removal of the fœtus when it cannot be accomplished otherwise.

2. *Indications or conditions* revealed by laparotomy.

(*a*) Celioncus, enteroncus, nephroncus, and celioclyesis.

(*b*) Enterorrhesis, celiophyosis, and enterosepsis.

(*c*) Coprostasis, enterostenosis, and occlusions caused by foreign bodies, invagination, volvulus, or strangulated hernias.

(*d*) Celialgia, enteralgia, enterosis and nephroptosis.

Before "taking up" the surgical diseases of the abdomen, stomach and intestine, we shall consider the sutures commonly employed in abdominal and intestinal surgery, which will be followed by a description of each of these operations with special attention given to those commonly indicated in veterinary practice.

INTESTINAL SUTURES.

Here and there the veterinarian finds it necessary to perform intestinal operations, and should as a consequence be familiar with the technique of intestinal anastomosis. In the larger domestic animals such capital procedures can rarely be carried to a satisfactory termination, but in the smaller ones—the canine, feline and porcine species—they are attemptable.

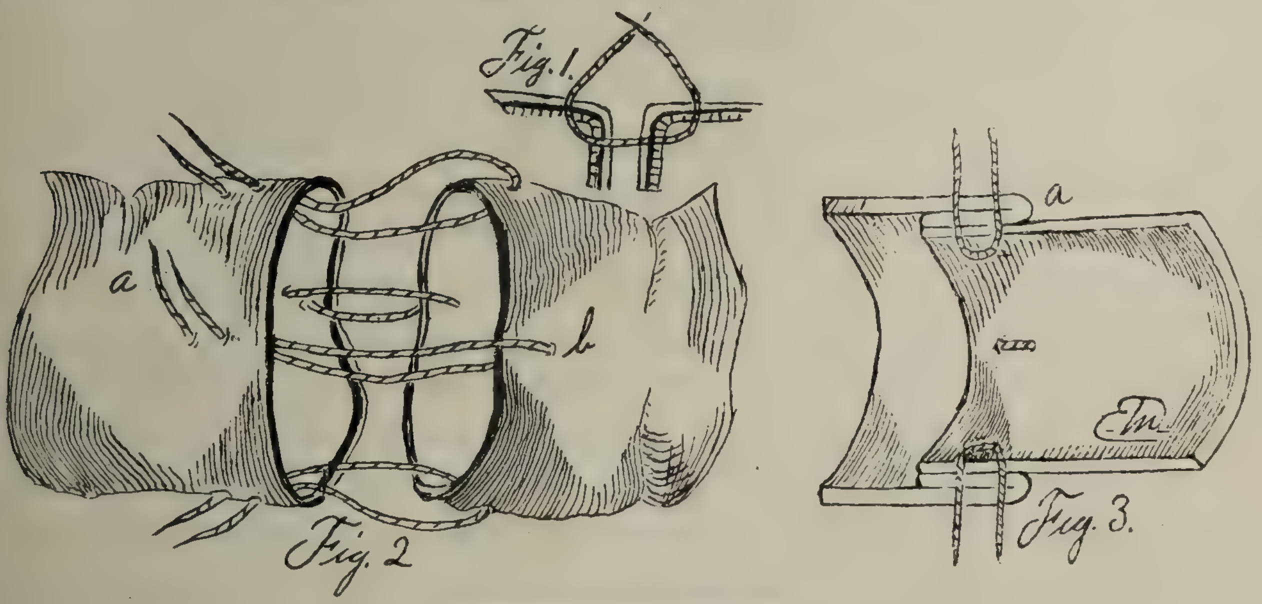
The methods of effectually re-establishing permanent continuity in the intestines are numerous. Each prominent surgeon adheres more or less to a certain one of these methods, which vary only in details. The Murphy button, the decalcified bone button and the sutures all serve the same general purpose of bringing the peritoneal coats of each end together, in perfect contact, while the cut edges are kept in the lumen of the intestine. The edges may then slough off and pass down and out with the contents of the bowels, while the serous coat, noted for its rapid proliferation, soon safely unites. The button method is no longer considered indispensable, since it has been shown that end-to-end unions and anastomoses can be safely accomplished without them.

Before attempting such operations the bowels should be emptied as much as possible and the peristalsis suspended with opium. If there is any septic matter in the cavity it must be well irrigated; the sutures must be pure beyond doubt, and should never pass through the three coats of the intestine on account of the danger of infection from the contents of the bowels; for stitch suppuration will surely prevent a favorable termination.

The sutures used in intestinal approximation and anastomosis or in such operations as enteroraphy and enterostomy should be made with a curved needle, and the ligatures used in each of the above mentioned procedures should be selected as follows: (1) Catgut for stitching the serous coats and (2) silk when close apposition is desired and firm sutures required.

(1) In stitching the serous coats, catgut should be used because it is readily absorbed and leaves no ligature sinuses which are often the cause of much trouble after such operations. It should be carefully sterilized, being more difficult to disinfect than silk, therefore special care should be given to this procedure; for it is generally conceded that a large percentage of failures in these operations is due to stitch suppuration, which can in no way be avoided but by the adoption of correct aseptic methods and the proper selection of sutures.

(2) Silk sutures may be used, and in fact are preferred in stitching the edges of the surgical wound, which slough and pass off with the contents of the intestines. In such instances, the stitches are required to be more firm and reliable than cat-



JOBERT'S SUTURES.

FIG. 1. Stitch used for suturing intestinal incisions.
FIG. 2. Jobert's invagination suture.
FIG. 3. Jobert's method of approximation.

gut sutures, which often soften and give way to slight tension, and for this reason are considered too treacherous for this series of stitches, which should be carefully and substantially applied in order to relieve the stitches that bind the serous coats together, of part of their tension. As this series of stitches are more liable to become infected from the contents of the alimentary canal than those of the periphery, and, as the silk may infect other parts of the wound with which it may come in contact during ligation, it is therefore very essential that the silk be *perfectly* aseptic, or, in other words, well sterilized.

Classification of Intestinal Sutures:—The sutures employed in these operations are usually named in honor of the originator, and the ones that we will consider in this article are, viz.:

1. Jobert's suture.
2. Lembert's suture.
3. Czerny's suture.
4. Chaput's suture.
5. Czerny-Lembert suture.

Each of these has been tried by many surgeons and their respective merits noted. In some cases the more simple ones prove very satisfactory, while in other cases, and apparently under the same circumstances, have been found very unsatisfactory; however, the most efficient suture known thus far is a compound, or rather a combination of two simple ones (Czerny-Lembert suture, Figs. 4 and 5), which we shall describe later in this article; but at present it suffices to note that each method of suturing has its indications and contra-indications; its advantages and disadvantages; and that each operator should choose the method which in his judgment will give him the best result; and in selecting his method of suturing, he should consider the health and general condition of the patient upon which the operation is to be performed. Susceptibility to infection, and the power of endurance of the patient, are also important factors to be considered, before the method of procedure is adopted and the operation is undertaken.

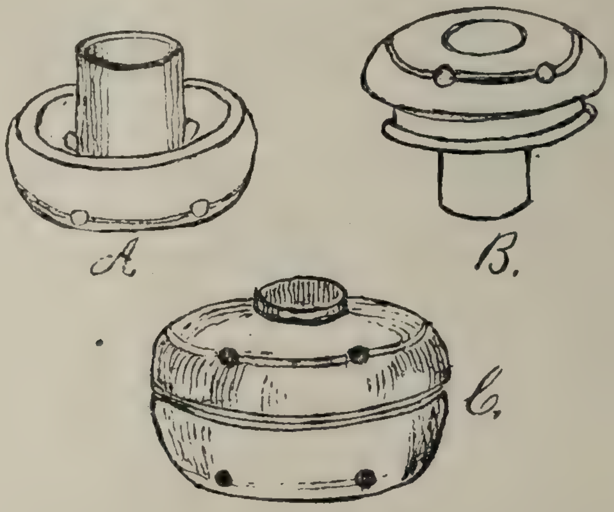
In considering the merits of the different sutures, it should be remembered that some of the simple methods will answer the purpose under some circumstances, while other methods which are more complicated, requiring more time, care and efficiency to apply them properly, are not necessary to accomplish the required result, if the patient is in good condition; and in such cases, a plain and simple method will shorten the procedure and simplify the technique, which adds to the brilliancy of the operation; but if positive results are required the best and surest methods should always be adopted.

Susceptibility to infection must be given due consideration, for there are various conditions, such as gastro-intestinal catarrh, chronic enteritis, tumors, tuberculosis, abscesses near the seat of operation, which may render the surgical wound susceptible to infection by reducing the vitality of the tissues, and thus making a favorable soil for septic bacteria, which can be introduced either by primary or secondary infection. In such cases the greatest care must be taken in making the sutures, and also to prevent extraneous and autoinfection, which usually bring about an undesirable state of affairs, if not warded off by all possible precautions, and if the proper sutures are not selected and correctly applied. Dexterity and rapidity in operating is conducive, but in such cases, there are other achievements that are more desirable. "It is important to be a dextrous operator, but it is more important to be a successful surgeon."

The power of endurance. In this connection there are a variety of things to be taken into consideration, and among the most important is the power or ability of the patient to withstand shock, which, however, seldom causes death without reaction, but its severity following such operation depends greatly upon the constitution of patient. An animal may appear strong, robust and vigorous before the operation, but his condition may be treacherous, due to his possession of a certain amount of tolerance or endurance without the ability to stand additional strain and in such an instance is susceptible to constitutional disturbances following the operation.

The clinical picture which shock produces, following such conditions, is marked by a cold, clammy sweat; pale visible mucous membrane, subnormal temperature, 97° to 98° F. (peripsyxis), weak, imperceptible, thread-like pulse, sunken eyes, and a weird look. The course is usually typical, marked with uneasiness and restlessness (dysphoria), loss of coördination in walking (abasia) and standing (astasia), which is generally progressive, standing becomes difficult (dystasia), walking almost impossible (dysbasia), the pulse becomes weaker and weaker with now and then a pause, which is an indicator of death, and is soon followed by enecation.

The power of endurance is also reduced by pathological conditions, and organic diseases which gradually lower the vitality of animals. Although it is seldom necessary for a veterinarian to expect organic or functional disorders to contra-indicate surgical interference when making his ante-operative examination; but it is advisable, when an emaciated subject presents itself in this connection to take in the whole situation, and allow nothing to pass unnoticed which may reveal itself in the form of such dreaded sequelæ as renal insufficiency, asthenia, or surgical shock.



MURPHY BUTTON.

A, and B, open; C, closed.

If the pathological conditions which have reduced the vitality of the animal are localized in the intestines and, if the surgeon concludes that immediate action would relieve and improve the condition of the patient, he should at once resort to vigorous and skillful measures, and employ such means that will economize strength and shorten the operation; and something, in the way of medication, should be administered to tone, stimulate and strengthen the depleted system. In such cases the Murphy Button would be applicable in approximation or end-to-end anastomosis, as it can be adjusted in less time than it would require to make the sutures indicated under such circumstances. (Its application will be considered under intestinal surgery.)

In weighing the respective merits of the different stitches used in intestinal approximation and anastomosis, or, in suturing surgical wounds made in the intestines, we shall consider them in the order named, and shall mention the advantages and disadvantages of each method as observed by experienced surgeons who have performed the operations in question and carefully noted the respective value of each method; and, besides, we are indebted to S. G. Burkholder, M. D. V., M. D.,

V. S., for his experience and observations in performing laparotomy upon small domestic animals, and for the valuable information received from him in this direction.

1. *Jobert's Suture.*—The stitch known as Jobert's suture is the most simple suture used in intestinal operations, and is an interrupted stitch which is passed through all the coats of the intestine and applied as follows: fold the edges of the surgical wound inward into the lumen of the intestine and approximate them; then pass the needle through the three coats of the intestine into the lumen (Fig. 1); then through the three coats of each of the edges of the surgical wound which have been folded in and approximated, and then through the opposite side, making the point of exit the same distance from the edge of the wound as the point of entrance.

The distance between the stitches should not exceed five or six millimeters, and, in some cases, should be even less. It is necessary, however, for the operator to use his own judgment as to the proximity and tension of the stitches, and especially as to tension, for it is absolutely necessary to have uniform tension of stitches in all intestinal operations, no matter what method of suturing is adopted.

This method has its advantages and disadvantages. The fact that each stitch comes in contact with the contents of the alimentary canal is the greatest objection to the method, and the rapidity with which an operation can be performed by this method of suturing is one of its advantages. In approximations or end-to-end anastomoses, these stitches are easily applied, and if the intestine is not involved in any serious pathological condition, and it is desirable and advisable to shorten the operation, this method can be used to a fair advantage; however, the result is not certain and should not be used when it is convenient to apply a more reliable suture.

Jobert describes a method of making intestinal approximations (Fig. 3) which consists of stitches made in the same manner as those just described; but in this case only one end of the intestine is folded inward and the other is inserted into it, which brings the two serous coats together; the stitches are then passed through all the coats of both ends into the lumen and out again. This method is not advisable, as it is difficult to encourage synulosis sufficiently to make good, reliable unions, for there are two in this procedure (Fig. 3-a): one between the two mucous surfaces of the end that is folded inward, and the other between the serous coats of the two ends. The mucous coats do not unite as readily as the serous, and if the sutures are made of catgut, which usually slacken in a short time, and leave a wound in the mucous surface exposed to infection from the contents of the alimentary canal.

A third method has been described by him which is known as the Jobert's invagination suture (Fig. 2). In this procedure both ends are folded inward, and the stitches are made by passing the needle through all the coats into the lumen of one end from without inward, then through the other end in the same manner, then through the first end about four millimeters farther from the end than the point of entrance ; and when the required number of stitches have been applied they are ligated, which brings the one end into the lumen of the other end of the intestine to be approximated. This invagination method is not a very reliable way of reëstablishing continuity in intestines of domestic animals, although it is a very ingenious procedure.

(*To be continued.*)

SURGICAL "NEVERS."

1. Never operate without securing your patient properly.

2. Never operate too soon, nor postpone an operation too long ; operate at the proper time.

3. Never operate without exhausting every possible means of making a correct diagnosis.

4. Never abandon an operation before accomplishing your purpose.

5. Never operate without familiarizing yourself with the operation to be performed.

6. Never foster dexterity at the expense of judicious technique.

7. Never neglect to have your operating room equipped with a good casting apparatus, side-line, extra ropes, twitch, hobbles, stocks ; and clean straw, shavings or mattresses on the floor.

8. Never operate in a dark or ill-ventilated place.

9. Never keep your client in ignorance of the sequelæ that may follow an operation.

10. Never expect *fin de siècle* methods of surgery to be successful without some exertion on your part to make them so.

11. Never cast an animal without sufficient help to do the job properly.

12. Never cast an old animal without warning all parties interested as to the danger of injuring such animals.

13. Never cast an animal in the advanced stage of pregnancy, unless the patient's life depends upon the operation.

14. Never perform an operation requiring delicate manipulation without the aid of an anæsthetic.

15. Never administer an anæsthetic without first considering the condition of the patient, nor without preparing the patient for the ordeal; except in emergency cases, which are comparatively rare in veterinary practice.

16. Never keep an animal under the influence of an anæsthetic for more than an hour.

17. Never administer a general anæsthetic when a local one will do as well.

18. Never fail to consider the danger of receiving physical injury while performing operations. A kick from a horse, a hook from a cow, a bite from a dog or a scratch from a cat, all reflect upon the surgeon's efficiency.—(*E. M.*)

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VETERINARY PHARMACOLOGY AND TOXICOLOGY (Pharmacie et Toxicologie Vétérinaires). By MM. Delaub and Stourbe Vol. 1 in 18. Veterinary Encyclopedia of Cadéac. Published by J. B. Bailliere & Sons, Paris.

This new volume of the Veterinary Encyclopedia of Professor Cadéac is composed of two parts essentially distinct, the Pharmacology, by M. Delaub, of the Toulouse Veterinary School, and the Toxicology, by M. Stourbe, of Alfort.

In the *Pharmacology*, after some general remarks, we find two parts—gallenic pharmacology, with the art of prescription writing, and chemical pharmacology. In the first, we observe interesting remarks on the surrounding conditions that may influence the properties of indigenous drugs. The various pharmaceutical manipulations are carefully described. The drugs are classified according to their pharmaceutical forms: powders, solutions, electuaries. The study of each of these forms includes, first, some preliminary information, then as examples or records a great number of prescriptions taken mostly from the National Pharmacopœia.

The order followed in the chemical pharmacology is atomic classification. The article referring to each substance is divided into various parts: synonyms, properties, specific character, comparative character, preservation, action, indications.

Toxicology is divided into two parts:—The first includes definitions, an interesting historic, legislative classification of poisons and preliminary tests.

The second part, or *special* toxicology, is a most complete study of the various poisons. The author does not only tell how to look for them, but exposes their action on the organism, symptoms, character of autopsies, etc. However, the enumeration of the chapters of each subject will show the toxicological study of each one: generalities, modes of absorption, toxic doses, absorption, circulation, elimination, symptoms, lesions, prognosis, treatment, etc. Some poisons of special importance are the object of extensive consideration, such as prussic acid and compounds, phosphorus, atropine, strychnia, copper, lead, mercury, arsenic, antimony, carbon dioxide.

Altogether, this book, written in a clear and elegant style, neatly put up, contains, under a well arranged form, all the necessary notions of the two branches it treats of.

COLLEGE COMMENCEMENTS.

ALUMNI ASSOCIATION N. Y.–A. V. COLLEGE.

The commencement exercises of this college will be held in conjunction with the Medical Department of New York University at the Metropolitan Opera House, Broadway and Fortieth Street, New York, June 7, at 8 P. M.

The banquet of the Alumni Association of the Veterinary Department of New York University (consisting of the alumnæ of the American Veterinary College and the New York College of Veterinary Surgeons) will be held at the Hotel Marlborough, Broadway and Thirty-sixth Street, June 7, at 11 P. M.

It is earnestly hoped that a large reunion of the alumnæ of these two schools will attend, since the interests of their alma maters having been cemented, a closer acquaintance and friendship between individuals will undoubtedly prove a pleasant and profitable occasion. Those who expect to attend should at once notify Dr. H. D. Hanson, 160 Eldridge Street, or Dr. C. E. Clayton, 153 W. 54th Street, New York City.

DR. R. C. MOORE has been appointed Assistant State Veterinarian for Kansas City.

CORRESPONDENCE.

THE "JOURNAL" AND THE PUBLICATION COMMITTEE OF THE A. V. M. A.

ITHACA, N. Y., May 22, 1900.

Editors American Veterinary Review:

DEAR SIRS :—The March *Journal*, which, owing to the lateness of the season, came out in May, makes an unwarranted attack upon the Publication Committee in the following words: "Some papers, of much importance, specially prepared for the New York meeting, are omitted entirely, others are severely abstracted, while the discussions as reproduced fail very much in many instances of being faithful reproductions of what was said and discussed."

Each of the three charges are malicious falsehoods.

No *papers* were, but only a *paper* was omitted entirely. When the senior editor of the *Journal* presented his paper at the meeting the chairman of the committee immediately requested it, but was denied, and the paper retained until the *Journal* editors knew the proceedings were in print, apparently for the purpose of trumping up false charges.

Neither were *papers* abstracted either "severely" or mildly. In *one paper* the author had introduced a large amount of irrelevant matter which had no connection either direct or remote with the title of the paper. This irrelevant matter being in a block, the entire block was omitted without disturbing the symmetry of the paper, and without losing a sentence, thought or word which had any relation to the title of the paper. This was completely within the committee's jurisdiction, was a kindness to the author, and a saving in money and in scientific value to the association.

The third charge of unfaithfulness in the reproduction of discussions reaches the acme of blind malice. The committee employed a competent stenographer, who very promptly delivered typewritten copies of all discussions in duplicate, and one of these copies designed for and used by the printer was handed to each participant in the discussion for correction and *every discussion was printed just as corrected by the speaker himself*, except in matters wholly unimportant, like some business discussions, which were edited and the bare record of the actions inserted.

Errors there were, they always occur, and the committee sincerely regrets them, but after a lapse of several months we have failed to find any serious errors of fact either in omission or commission, nor has any member, or even the hypercritical *Journal*, pointed any out.

The *Journal* is specially sensitive upon the question of the publications of the proceedings of the A. V. M. A., and has never approved the character of the publication except when edited by the *Journal's* editor, and *printed by the Journal's printer.*

Any member will readily understand the *Journal's* sensitiveness by a perusal of the committee's report for 1897 on page 28 of the proceedings.

It took three years of editing and printing proceedings by the *Journal* to bankrupt the association, and the proceedings appeared in from 6 to 18 months after the meetings. The proceedings were better edited and printed perhaps; surely the work took long enough time and cost enough. It cost so much that a special assessment of $5.00 per member was levied, and failed wholly to meet the deficit, and obliged the association to go without printed proceedings for two years. It cost serious disaffection in the association, and an appalling decrease in membership. Under the retiring committee the expenses of publication have been so far reduced that the deficit from previous recklessness has been paid, and a good surplus accumulated in the treasury, and the annual dues reduced 40 per cent. Printing which with the *Journal* cost $1.60 to $1.68 per page is now done at 96c per page. The same binding for which the *Journal* extorted 50c per copy, is now done at 18c. Proceedings that required a year for the *Journal* to issue now appear in 60 days. But the *Journal* is not happy. Apparently it imagines it time to again get hold of association finances as there is a good surplus in the treasury.

But before it again acquires control we would suggest that it render an accounting for nearly $200 of association funds, which were alleged to have been expended for the printing of a quantity of proceedings by the *Journal* printer, and which have never been reported as having been seen except by the *Journal's* editor.

It would be interesting also to know if the *Journal's* editors, in case of renewed access to association funds, expect to revert to their former method of attending association meetings with a few of their boon companions in a special car, and using association funds to pay the bills. W. L. WILLIAMS,

Ex-Chairman of Publication Committee, A.V.M.A.

PERINEPHRITIC ABSCESS—POSSIBLE PARASITIC ORIGIN.

NEW YORK CITY, May 22, 1900.

Editors American Veterinary Review:

DEAR SIRS:—I feel impelled to make a few observations in regard to the article detailing a case of perinephritic abscess with hæmorrhagic nephritis, published in your valuable monthly of this month, on page 113. I am surprised not to find a single word in that article as to the possible parasitic origin of the pathological alterations mentioned. The post-mortem report appears to be rather incomplete, as nothing is mentioned about the other internal organs, including the blood vascular system.

As far as the etiology is concerned, I am very strongly inclined to believe that the pathological alterations of the kidney were either due to primary parasitism within the kidney (*strongylus gigas*) or due to verminous thrombosis of the renal artery or some other artery—for instance, anterior mesenteric artery, or cœliac axis, the latter two possibilities also being capable of producing embolic infarcts of the kidney, followed by formation of one or more abscesses.

I think that every veterinarian who is acquainted with the natural history of *strongylus armatus* and the frequency of this parasite in horses, and the possible consequences it is apt to produce, will agree with me as to the chances of the etiology of the case in question.

The possible injury which is mentioned as a probable cause seems to me a little far fetched, especially when we consider the well protected anatomical location of the kidneys in horses.

I cannot approve of leaving the diagnosis of such an interesting pathological anatomical case to an M. D., as medical men are not supposed to know much about special pathology in horses. Of course, it is too bad that pathological anatomy is such a weak point with a majority of our veterinarians, and that as a consequence medical men are called upon.

Yours respectfully,

DR. WILFRED LELLMANN,
Professor at N. Y.-A. V. C.

FLUSHING, N. Y., May 25, 1900.

Editors American Veterinary Review:

DEAR SIRS:—I have read with a great deal of pleasure the interesting and life-like descriptions of Dr. Ellis' case of a perinephritic abscess, as reported in your last issue, but I believe that the cause is not of external origin but of internal. I admire his way of gradually arriving at his diagnosis in locating the disease in the kidneys, but I would have gone one step further and diagnosed an aneurism as the cause, to which all the clinical symptoms pointed quite plainly. This aneurisma vermicosum, caused mostly by strongylus armatus, is commonly confined to the anterior meseuteric artery (producing embolic colics), but occasionally involves the abdominal aorta, renal arteries and kidneys with tumor-like dilatations of enormous volume.

Whenever our American veterinary colleges will have regular courses on post-mortem examinations by veterinary pathologists instead of human pathologists, such elaborately worded mistakes as that emanating from the Carnegie laboratory will no longer happen. But I hope that Dr. Ellis will continue to favor the readers of the REVIEW with his interesting clinical observations and lucid descriptions. OLOF SCHWARZKOPF.

THE TREATMENT OF AZOTURIA.

COLUMBIANA, OHIO, April 30, 1900.

Editors American Veterinary Review:

DEAR SIRS:—I think we can treat azoturia more successfully now with the normal saline solution, in addition to the iodide of potassium. In the New York *Medical Record* of April 14 there is an article by R. C. Kemp, M. D., on "Hypodermoclysis," which I read, and on the next day I visited a mare which had been down with azoturia since the evening before, she being two miles out of town. I was giving her the iodide of potassium treatment, as I had read it in the REVIEW. I had also given her on the previous evening a quart of linseed oil. On Monday (third day from attack) I prepared a solution as follows: sodium chloride, one dram; boiled water, one pint, which was percolated. I used my parturient paresis apparatus (funnel and tubing), with a large veterinary hypodermic needle attached to the tubing. I had an assistant fill the funnel and tube to force all air out. The solution was about as warm as the hand could bear, as it gets cool in passing through the apparatus. I forced the needle under the integument in the ilio-lumbar region, using massage to the muscles to distribute it, and forcing in one pint of the solution, repeating the operation on the opposite side. In a short time the animal was very thirsty. I had drawn the urine prior to the injection. The injection seemed to assist the action of the kidneys; she rested better, and could turn herself and tried to get on her feet, but the owner kept her lying. The next morning she was up before I got there.

I have had two cases die, and the third one was down for fifteen days, then stood up very well for two or three days, but now both stifles are affected with atrophy. Have injected strychnia and sodium chloride and used electricity, but with little benefit. She will only stay up five minutes at a time.

I had four cases that were down with azoturia, and five that remained on their feet. All that were down had badly congested kidneys, for you could see the casts under a high-pressure microscope; also crystals of uric acid, oxalate of lime and phosphate of lime, and plenty of albumen. Now, Dr. Kemp says the casts and albumen decrease by using the salt solution.

I should like some other veterinarians to try this and report their experience. Fill the cellular tissue full. I intend to put in one gallon in the next case. Yours very truly,

J. B. CAUGHEY.

SOCIETY MEETINGS.

CHICAGO VETERINARY SOCIETY.

The regular monthly meeting of the society was called to order by President Hughes on Monday evening, April 9, in hall 912, Masonic Temple. Twenty-five members of the society were present and a very interesting evening was spent.

After the regular order of business, Dr. L. A. Merillat presented the following contribution on

"BELLADONNA."

Official belladonna is the root or leaf of *atropa belladonna*, a native plant of continental Europe. In its wild state it thrives best amidst rubbish, around old ruins, along old walls, and especially when these places are protected by shade. It will also grow vigorously when cultivated under favorable conditions, in parts of the temperate zone. Atropa belladonna (commonly known as the deadly nightshade) is an herbaceous, perennial solanaceæ, growing to the height of about one metre, flowering with beautiful red bell-shaped flowers in July, and ripening its reddish berries in September.

The entire plant contains two alkaloids occurring as salts of malic acid, chlorophyl, wax, starch, gum, albumin, lignin, and various salts, but the United States and British pharmacopœias demand the use of the leaves and roots only. The leaves yield the alkaloid most abundantly, the root, fruit and branches being next in importance in the order named. Chemically, botanically and medicinally atropa belladonna simulates—

(1) Datura stramonium (thorn apple).
(2) Hyoscyamus niger (henbane).
(3) Buboisia hyoporoides.

Medicinally, besides the above, it resembles—

(4) Cannabis sativa (Indian hemp).
(5) Erythroxylon coca (coca).

Botanically, we may add—

(6) Capsicum fastigiatum (cayenne pepper).
(7) Nicotiana tabacum (tobacco).
(8) Solanum dulcamara (bittersweet).

The medicinal activity of atropa belladonna depends entirely upon an alkaloid which Brandes christened atropine, and a less important alkaloid named belladonnine. Atropine is an alkaline principle with the formula $C_{17} H_{23} NO_3$. The formula for belladonnine is $C_{17} H_{23} NO_4$, containing one atom of oxygen to each molecule more than atropine.

It has been said that hyoscyamine, which has the same formula as atropine, but differs physically, is the true natural alkaloid of atropa belladonna, and that atropine is a conversion product. Chemically and medicinally atropine is identical with hyoscyamine, hyoscine, duboisine and daturine, differing only in their physical constitution. White and Wilcox state that hyoscyamine and atropine occur together in atropa belladonna but are not readily separated. Ladenburg regards daturine as nothing more than a mixture of atropine and hyoscyamine, while Von Planta found and has since proven that daturine and atropine do not differ at all. This discrepancy is, however, of no great importance to the therapist, but we should know that—

(1) Atropine is found in atropa belladonna and datura stramonium.

(2) Hyoscyamine is in hyoscyamus niger, duboisia myoporoides, datura stramonium and probably in atropa belladonna.

(3) Hyoscine in hyoscyamus niger only.
(4) Daturine in datura stramonium only.
(5) Duboisine in duboisia myoporoides only.
(6) Belladonnine in atropa belladonna only.

The useful preparations for veterinarians are—

(1) Extractum belladonnæ radicis fluidum.
(2) Extractum belladonnæ foliorum fluidum.
(3) Atropinæ sulphas.
(4) Homatropinæ hydrobromas.

The fluid extract of the leaves and the root are of uniform strength, so that it does not matter which of these two preparations is selected.

The fresh leaves and roots should contain from 2 per cent. to 6 per cent. of atropine, the average being about 4 per cent. In regard to the strength of fluid extracts, if the product is pure and reliable, it should contain .004 grams of atropine to the gram, *i. e.*, each minim should contain about 1/250 of a grain, and each fluid ounce, 1.8 grain of atropine. The fluid extract of belladonna, like many prepared drugs, varies greatly in potency, some samples being entirely wanting in medicinal activity. A prominent physician prescribed 60 grams (2 oz. bottle) of fluid extract of belladonna for a small boy to be taken in two minim doses every two hours. The boy misunderstood the directions and took two teaspoonfuls at each dose and returned in the morning for more medicine, feeling none the worse from the error. A horse drenched with one pint (280 grams) worked the following day without apparent inconvenience. When we take into consideration the "powerful" as well as the reliable effect of atropine itself, it is essential to demand some assurance of reliability in procuring fluid extracts, which the above instances show conclusively is not always reliable.

The Sulphate of Atropine.—The atropine sulphate is a very bitter, nauseating, crystalline powder, obtained by dissolving atropine in dilute sulphuric acid. It is soluble in 0.4 parts of water, and in about 6 parts of alcohol. Its formula is $(C_{17}H_{23}NO_3)_2H_2SO_4$.

The Hydrobromate of Homatropine is a white crystalline substance prepared by heating tropine ($C_8H_{15}NO$) with orytoluic acid in the presence of hydrochloric acid, and then neutralizing the product with hydrobromic acid. It was introduced into human ophthalmic practice about 1890, and is now coming into general use as a substitute for atropine as a mydriatic.

It is very expensive and will be excluded from the veterinary pharmacy for some time. It is soluble in 10 parts of water, and in 133 parts of alcohol.

Physiological Action of Belladonna.—Externally if applied with substances which are absorbed into the skin, or if applied to a wound or mucous membrane, belladonna will paralyze the terminals of sensory, secretory and motor nerves. It has a special action as a depressant to sensory nerves, and when there is pain is therefore an anodyne. It will dilate the capillaries and lessen the secretions of the skin and mucous membranes to which applied.

Internally its action is probably more complex than any of the more common medicines. Although it really has but one action, the secondary effects as a result are complicated to the extreme. This one action is that of paralyzing the periphery of the nervous system, to which might be added: *especially of secretory nerves.* The sensory and motor also share in the depression, but not to the same extent as the secretory nerves. As a result of this depression the following phenomena is observed:

1. By depressing secretory nerves, the whole ærial mucosa is markedly desiccated. The extreme dryness of the throat in human patients is a manifestation of what belladonna does to the whole mucosa. The secretion of milk is greatly diminished, and in some cases entirely arrested. Sudation is greatly depressed or even suspended, and as a consequence the skin becomes dry. The intestinal secretions are only temporarily suspended, if at all. The action of belladonna on the intestinal secretions is not well demonstrated, but it is not disputed that the effect upon the intestinal secretion is less than upon other secretions. Its action upon the renal secretion is somewhat uncertain on account of the depressing action upon the sudoriparous glands. The function of the skin being suspended, belladonna may, as a result, actually increase the activity of the kidneys. On the salivary secretion the action is decided, the parotid and submaxillary glands sharing especially in the depression.

2. By paralyzing inhibitory nerves the heart's action is augmented. Both the number and force of the heart beats are increased, but more especially the former. This action of belladona is due to paralysis of the periphery of the vagus, which inhibits the heart's action. By paralyzing the periphery of the splanchnics, belladonna augments the intestinal activity, especially peristalsis, the intestinal secretion sharing slightly from this indirect stimulation. The first effect of the drug upon the secretion of the bowels, as already stated, is that of suppression, but later when the inhibitory nerves become depressed, the intestinal glands resume at least their normal activity.

3. By paralyzing motor nerves the voluntary muscles become paralyzed, but this effect is noticed only in the later stages of belladonna poisoning. In ordinary medicinal dosage

the effect on voluntary muscles may be said to be negative, but upon involuntary muscles, its action is marked; and upon this action the real value of belladonna as a curative agent largely depends. It paralyzes the vaso-motor constrictor nerves, especially of the capillary system, and so increases their lumen as to almost produce a pathological condition. The surface of the body becomes reddened and engorged with blood, and the mucous membranes are affected likewise. The organism is brought into a state that eminently resembles the first stage of a fever or an inflammatory disease, *i. e.*, augmented heart's action, with heat, redness, engorgement and dryness of the surface of the body. The capillaries of the lungs being similarly affected the respiratory area is increased. More blood is oxidized and more CO_2 is eliminated. With the heart stimulated into increased activity, the capillaries of the great respiratory area active and engorged, belladonna acts as a powerful stimulant to the respiratory function, a feature possessed by no other drug. The periphery of the third nerve is paralyzed and thus the elastic fibres of the iris contract and dilate the pupil. It was once said that atropine dilated the pupil by stimulating the sympathetic filaments of the iris, but as this theory has never been proven, and since it is difficult to conceive how a drug could depress one nerve and at the same time and under the same condition stimulate another, it is a statement that deserves no serious consideration. When the third nerve is cut the pupil dilates precisely as it does when paralyzed with atropine; therefore the mydriatic action of belladonna is easily comprehended.

4. By paralyzing sensory nerves belladonna becomes an analgesic, but in this connection it is inferior to opium. When applied locally in a more or less concentrated form it does relieve pain, but internally it does not rank high as a pain-killer. It does, however, have a soothing effect upon the urinary tract, and probably upon the generative organs.

Brain and spinal cord:—The only medicinal action that belladonna has upon the brain and spinal cord is its influence on the respiratory and vaso-motor centres.

Summary.

1. Belladonna is a cardiac stimulant, increasing particularly the number of heart beats.

2. It arrests secretions of the skin (antihidroic); the mucous membrane, especially the bronchial; the salivary glands (antisialagogue); and of the mammæ (antigalactagogue).

3. It does not have a marked effect on intestinal secretion, only temporarily suspending it.

4. It slightly augments peristalsis, but not sufficiently to warrant its use for this purpose.

5. It stimulates the respiratory function, and in fact increases the capacity of the lungs.

6. It dilates the pupil (mydriatic.)

7. Internally it has no marked effect on pain, except on the urino-generative tract, but ranks high as a local anodyne.

8. It dilates the capillaries and stimulates the action of the heart, and is therefore stimulant to the periphic circulation.

Therapeutics :—Belladonna has two general indications, viz., inflammation and passive hyperæmia. In any of the organic inflammatory diseases, or in any inflammatory condition, belladonna deserves to be considered in connection with their therapeutics. To say that belladonna is indicated in inflammation seems a very broad statement, and one which will probably be accepted unchallenged. But when the pathological process (inflammation) is carefully reviewed, and the total effects of the drug carefully weighed, the statement is not so ambiguous as it seemed without consideration.

The period of inflammation in which belladonna is useful, if not almost a curative agent, is the stage succeeding the stage of engorgement, *i. e.* the second or moist stage. Its tendency here is to correct the vascular alteration and to limit exudations, which in croupous, catarrhal, diphtheretic inflammation is precisely what is desired. To limit the exudations of bronchitis, laryngitis or pulmonitis, is no more nor less than decreasing the ravages of inflammation, especially in the latter, when the inflammatory exudates gradually close the respiratory tract, it is part of the great battle to combat them ; and besides, in this disease, that part of the lung that is not affected is rendered more capable of performing its function.

In these respiratory diseases, belladonna also possesses the property of preventing cough, which is caused by the inflammatory secretions, as well as the inflammation itself ; in the former by drying secretions, and in the latter by allaying the irritation. In pleuritis it should prevent hydro-thorax, although I cannot substantiate the statement from experience, as I have never administered it with this end in view.

In secondary nephritis occurring along the course of infectious diseases, especially when the condition has been aggravated by the liberal use of diuretics, belladonna has a beneficial influence; and also in cases of metritis and cystitis. In these diseases belladonna and saw palmetto prescribed together, often give flattering results.

The organic diseases in which belladonna is especially valuable are: Croupous pneumonia, catarrhal pneumonia, bronchitis, laryngitis, nephritis, cystitis, mastitis and metritis. It is also of service in laminitis and enteritis, but no special claims can be made for it in these diseases.

In diseases of the eye or for making examinations of the posterior region of the globe, atropine at once commends itself, and when applied locally or internally it will dilate the pupil more than any other drug, and will in this way prevent the adhesion of the iris to the lens.

Contra-Indications :—Belladonna is strictly contra-indicated in active hyperæmia, and in the first stages of any inflammatory disease. Because of its antigalactogogue effect it should not be administered to mothers suckling their young, or to milking animals, unless its action is considered more important than the milk supply. In inflammatory diseases of the brain and spinal cord even small doses may cause delirium, and hence should be excluded from the therapy of these diseases. It has been prescribed in tetanus, but its value, to say the most, is doubtful.

Administration and Posology :—The doses of fluid extract should be about 15 grams every twenty-four hours. 1 gram doses every two hours, when given over a period of three or four days, is quite sufficient. In single the horse will take 8 grams, twice daily, but smaller and repeated doses give better results. Atropine, which should always be given hypodermically, may be given in .06 to .12 gram doses, twice daily.

Atropine hypodermically may be prescribed with strychnia (.06 grams of each). If given intratracheally, one-half the dose is sufficient, as atropine seems to increase the action of strychnia. I have noticed repeatedly that when these drugs are given together, even small doses will produce alarming symptoms of strychnia poisoning.

The fluid extract when given for pulmonary diseases may be combined with the fluid extract of nux vomica, and for renal or generative disorders, with saw palmetto and sanmetto. In hepatized lungs, ammonia muriate is a useful adjunct.

Belladonna is physiologically incompatible with pilocarpine, ammonia acetate, or any diaphoretic of the stimulating variety. On first notice it seems to be incompatible with opium, but this is not the case. Its action upon the respiration is exactly opposite, but otherwise they do not antagonize each other. However, this is of no importance in veterinary practice, as there can be no urgent need of prescribing them together. It might be argued that since one is a centric and the other a periphic paralizant, that their union might be useful in depressing the whole nervous system in painful afflictions. However true this may be in human practice, experience will soon teach a veterinatian that belladonna in the horse is not noted for its analgesic properties.

In treatment of diseases of the eye, when dilatation of the pupil is desired, atropine in a one per cent. solution is dropped into the eye three or four times a day; and after the third or fourth application the result will be attained, and the pupil thus dilated may remain for several days, and in isolated cases for a week. On account of this feature homatropine has entirely supplanted atropine when dilatation is desired for ophthalmoscopic examinations. A one per cent. solution of homatropine hydrobromate will dilate the pupil in from one to two hours, and the effect will pass off quite as rapidly, thus entirely overcoming the disagreeable feature of prolonged blindness.

DISCUSSION AND OTHER PROCEEDINGS.

All were pleased and highly interested in Dr. Merillat's paper, which was discussed by Drs. Robertson, A. H. Baker, and Hughes.

Drs. Merillat and Robertson entered upon a lively and extended debate of numerous subjects from belladonna to electricity and palmistry.

President Hughes introduced Professor Mauerman, bacteriologist at Northwestern University, who spoke and showed slides of actinomycosis, which was brought about by the discussion of Dr. Fish's paper at the March meeting; at that time the percentage of tuberculosis of the udder was brought up, and many of the inspectors confessed they had failed to differentiate clinically between actinomycosis and tuberculosis, and as a result one of the udders in question was submitted to Dr. Mauerman, and on microscopical examination was found to be actinomycosis. After a highly interesting discussion it was resolved to adjourn.

JOS. B. CLANCY, *Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The forty-sixth annual meeting was held at 882 Broad St., Newark, May 10th, 1900. Meeting called to order at 12 o'clock by the Secretary. Dr. W. Herbert Lowe was chosen temporary chairman. Roll-call showed 25 members present. Minutes of previous meeting read and approved. Dr. Lowe then resigned the chair to the President, Dr. Hurley, who had just arrived.

The Secretary then read letters from Dr. W. Horace Hoskins, Dr. Leonard Pearson, and Dr. R. C. Vail.

Dr. Budd moved a committee be appointed to see Congressman R. Wayne Parker and urge his support of the Army Veterinary Bill. The President appointed Drs. Budd, Harker and Runge.

Adjourned at 1 o'clock for dinner.

Reconvened at 2.15.

Dr. J. Payne Lowe read a paper on "Median Neurectomy"* and Dr. S. S. Treadwell read a paper on "Navicular Arthritis." Both papers were discussed at the same time.

Dr. James McDonough described contraction of the foot; its causes, consequences and treatment, and explained his subject by photographs. Dr. McDonough being an experienced shoer as well as veterinarian his remarks were very instructive.

The president appointed the following committee to revise the Constitution and By-Laws: Drs. Lowe, Glennon, Budd, Hasbrouck and Hurley.

Essayists for next meeting: Drs. Pape, Matthews, Sauter and Loblein.

Moved to meet at Atlantic City in September. Adjourned at 5.30 P. M. S. LOCKWOOD, *Sec'y.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Plans for the annual meeting in Detroit in September are rapidly maturing, and numerous letters received from members from all sections indicate a lively interest and a large attendance.

The following papers are already announced by Secretary Stewart:

"Psoropetes Communis Equi and Bovis, in Montana and N. W. Territory," by Dr. M. E. Knowles, State Veterinarian of Montana.

"Examination and Licensing of Stallions for Stud Purposes," by Dr. J. I. Gibson, State Veterinarian of Iowa.

"Remote Effects of Drugs," by Dr. L. A. Merillat, Professor of Therapeutics, McKillip Veterinary College.

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* Will be published in the July REVIEW.

"Relation of Lymphatics to Meat Inspection," by Dr. Tait Butler, Inspector in Bureau of Animal Industry.

"Notes on the Tuberculin Test in Wisconsin," by Dr. G. Ed Leech, Assistant State Veterinarian of Wisconsin.

"Antiseptic Therapeutics," by Dr. J. F. Winchester, of Lawrence, Mass.

"Urinalysis in Veterinary Practice," by Dr. Pierre A. Fish, Professor of Physiology, New York State Veterinary College.

The titles to other papers will be announced in a short time.

The clinic promises to be a strong feature of the Detroit meeting. Antiseptic surgery will be demonstrated as fully as possible, and it is expected the clinics will include operations on the head and mouth, and the tail, as well as the several classic operations on the limbs.

Reduced rates have been granted by the railroads, and it now seems probable that a special excursion party can be arranged to go by boat from Buffalo to Detroit, as suggested in the REVIEW some months ago. This should prove an enjoyable arrangement for members East of that point.

MISSOURI VALLEY VETERINARY ASSOCIATION.

The twenty-third regular meeting was held in the Kansas City Veterinary College, Kansas City, Mo., on the evening of Feb. 19th, at 7.30. It was arranged to have a surgical clinic on the afternoon of the same day, but owing to the absence of subjects no clinic was held.

Owing to the absence of the President, Dr. Forbes, the meeting was called to order by the Second Vice-President, Dr. Schæffer, with the following officers, members, and visitors present: Drs. Schæffer, Wright, Milnes, Washburn, Bennet, Kaupp, Cooper, Buckley, Saunders, Moore and Stewart, with Drs. Falsetter and Knight (from Texas), George, Boise and Lawton, also Messrs. Lomax, Painter, Mahon, Lawrence, Starr, Kampochmidt, McFarland, Parker, Carswell, Burgett, Phillips, Moberly, Roach, Reber, Rice, Makins, Miller, Barnhart, Immerman, Crickett, Mooney, Biggs, and Halstead.

The minutes of the previous meeting were read and approved. The censors having reported favorably upon the application for membership of Albert Long, it was moved by Dr. Stewart that the rules be suspended and the Secretary instructed to cast the ballot for the association. Motion carried; the Secretary cast the ballot for the association and the candidate was duly elected.

The resignation of Frank C. McCurdy was read, and, on motion, was accepted. No other business on hand, the literary programme was then begun, which was as follows:

"In Breeding," by Dr. L. E. Bennet. Discussion led by Dr. Ross Cooper.

"Clippings from German Veterinary Journals," by Dr. Washburn. Discussion led by Dr. Stewart.

"Scientific Horseshoeing," by Dr. Chas. Saunders, with exhibition of specimen shoes.

All the papers brought forth a great deal of good and interesting discussion, and, especially, with the paper of Dr. Saunders; it was eagerly listened to and a great many new and valuable points were obtained. The specimen shoes Dr. Saunders had on exhibition were a rare treat to all who saw them.

After the literary programme, a vote of thanks was tendered the essayists of the evening for all their excellent papers. By vote, the society decided to meet in Saint Joseph in June.

JOHN B. WRIGHT, *Secretary*.

NEWS AND ITEMS.

DR. T. B. POTE, of Terre Haute, Ind., is now a member of the federal Meat Inspection force stationed at St. Louis, Mo.

LARGE numbers of horses have been bought by the English at Kansas City and sent to Africa by way of New Orleans.

DR. BENJ. F. PIERCE, of Springfield, Mass., sailed from New Orleans for South Africa with British horses on April 11.

THE MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION will hold its annual meeting in St. Joseph, June 25th.

DR. H. G. PATTERSON, class of 1899, of the Kansas City Veterinary College, has been appointed Assistant State Veterinarian at St. Joseph, Mo.

THERE are 24 veterinarians engaged in the U. S. Meat Inspection service in Kansas City, 12 in St. Joseph, and 4 in St. Louis, Missouri.

DR. J. PAYNE LOWE, of Passaic, N. J., in a private letter dated May 10, says: "The outlook is very bright for associational work in our State now, as we have a membership composed of representative men who are aroused to action."

DR. W. H. MEADORS, graduate of the Kansas City Veterinary College, class of 1900, who has for the past month been inspecting horses and mules for the British government in Kansas City, has been transferred to Texas.

Dr. W. N. D. Bird, formerly stationed at Nashville, Tenn., in the Texas fever quarantine service, has been transferred to Buffalo. This will be a pleasant arrangement for the Doctor, as his old home is not far from that city.

"I have been a constant reader of the Review for a long time, and cannot get along without it. I always look forward to its coming with a great deal of pleasure."—*A. O. Kennedy, V. S., Columbia, Tenn.*

Dr. Chas. H. Higgins, veterinary pathologist for the Canadian Government, is now stationed at William Head, Victoria, B. C., to aid in the inspection of emigrants, and prevent the introduction of "bubonic plague" into Canada through the Pacific gateway.

Dr. H. G. Patterson, of St. Joseph, Mo.; Dr. H. G. Simpson, of Denison, Iowa: Dr. D. G. Moberly, of Kansas City, Mo., are among the number of veterinarians the English Government has employed to accompany and care for horses shipped from New Orleans to South Africa.

Dr. Charles A. Mackey, V. S., of New York City, died at his residence in that city, the latter part of April, from disease of the liver. He was a graduate of the New York College of Veterinary Surgeons, class of 1889, and was one of the veterinarians of the Police Department at the time of his death.

About 1200 horses are purchased and exported from the Buffalo horse market each month. The prices of horses have advanced fully 25 per cent. in the last few months, due to the scarcity of horses throughout this country, and the demand for the American horse abroad.

Appreciates the Review.—Enclosed please find money order for $3.00 in payment for Vol. XXIV of the Review. I appreciate the monthly highly, and, aside from the fact that I know that I am getting full value, I think it every veterinarian's duty and *his best policy* to help to support and encourage the publication of an organ devoted entirely to the publishing of news and facts affecting the welfare of the profession and the dissemination of advanced theories, discoveries and scientific researches relating to Veterinary Science, which in my opinion will be the chief factor in future Sanitary Medicine, so rapidly gaining in importance.—*J. V. Laddey, D. V. S., Arlington, N. J.*

Insurance Against Tuberculosis.—An up-to-date experiment is being tried by the dairymen who supply milk to Minneapolis. These dairymen have formed a mutual insurance company, insuring all of their cows for $25 each, and the premium is only ten cents per cow per year. The insurance is against the cows being condemned to death on account of tuberculosis by the State Board of Health. All cows giving milk that is sold in Minneapolis are eligible to insurance, and no other cause of death is recognized, the order for destruction signed by the proper official being necessary before the $25 will be paid. The amount may not be large, but $25 and the hide are a whole lot better than the hide alone to show for a cow.—(*Breeder's Gazette.*)

SANMETTO IN GENITO-URINARY TROUBLES OF THE HORSE AND DOG.—"I have used an excellent remedy, Sanmetto, in cystitic, impotency and chronic nephritis; also hæmaturia, and in all genito-urinary troubles in a dog, in teaspoonful doses, with the most satisfactory results. I have used one dozen bottles of Sanmetto this spring, on that number of horses, suffering with that most dreaded disease, azoturia, in ℥ ss doses, every four hours, in water q. s. Oss. They all got well except one, and she died in two hours after I saw her. All were down except one. I consider Sanmetto the best of any medicine I have ever used in those troubles, and shall continue to use it, and recommend it to all, for Sanmetto is a grand remedy."—*D. J. Smith, V. S.* (*Graduate of Ontario Veterinary College*), *Barre, Vermont.*

GOVERNMENT VETERINARIANS AT BUFFALO.—The following veterinarians are now engaged in the Federal Meat Inspection service at Buffalo, N. Y.: Dr. Chas. H. Zink, Inspector in charge of the station; Dr. B. P. Wende looks after the inspection of cattle in the New York Central Stock Yards, and all cattle imported from Canada, while in the same yards Dr. John P. O'Leary attends to the sheep interest and the dipping of the same. Dr. L. A. Robinson ably looks after the hog yards, and has become an expert in the detection of the diseases that hog flesh is heir to, while all horses intended for export must pass the inspection of Dr. H. M. Ball. At Abattoir No. 42, Dr. John H. McNeil ably looks after the post-mortem work on cattle and sheep. Dr. W. N. D. Bird attends to similar duties in the hog room. Dr. A. F. Martins has charge of the microscopic inspection force. Dr. H. R. Ryder looks after the calves and sheep that are slaughtered at Abattoir No. 190.

PASSING OF THE AUTOMOBILE.—The ultra-automobile dailies, of which the New York *Herald was* easily the leader, are gradually finding out the error into which they so precipitously plunged in persistently claiming the advent of motor vehicles and the decadence of the horse. The journal mentioned has abandoned its crusade against the light harness horse, and even pitches into the cynics who dared to insinuate that his popularity was waning. Its account of the recent grand New York Speedway parade of road horses was the most flattering testimonial that we have ever seen recorded by the best friends the horse ever had, and his future is pictured in the most roseate terms. Having become convinced by ocular demonstration that the inanimate machine can have but little part in man's pursuit of pleasure, if will require but a few months more to bring forth a similar declaration with regard to family equipages for convenience, style, and pleasure, while only a little longer time will be necessary to show the fanatics that for business or any other purpose the horse is cheaper, better, and more reliable than any other motive power, and the love of the masses for his beauty and faithfulness will ever keep him installed in the high place that has been his since the beginning of time.

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,

Veterinary Publisher, and dealer in Veterinary Books, Drugs and Instruments, is the authorized agent of the Review in Chicago and the Middle West, and will receive subscriptions and advertisements at publisher's prices.

HORSE AMBULANCE FOR SALE.

The widow of the late Dr. Wm. H. Harbaugh, of Richmond, Va., wishes to dispose of his ambulance, which he had specially built and used but a short time before his death, it being now practically as good as new. Any one wishing such a desirable addition to his hospital will do well to address Mrs. Sallie I. Harbaugh, Fairmount, Richmond, Va.

SECRETARIES OF V. M. ASSOCIATIONS

Can make money for themselves and do much good to their profession by getting up Subscription Clubs for the Review. Write us for club rates and full information.

REVIEWS FOR EXCHANGE.

I have these duplicates: Vol. XVIII, July (1894); Vol. XV, April and May (1891). I need the following: Vol. XIX, September and October (1895); Vol. XVII, January (1894). Would like to exchange with some one having duplicates, etc. Hugh Thomson, V. S., Sharbona, Ill.

NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the American Veterinary Review. Any one having an extra copy of that number please address H. D. Stebbins, V.S., West Winfield, N. Y.

BACK NUMBERS REVIEW FOR SALE.

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AMERICAN VETERINARY REVIEW.

JULY, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

TUBERCULOSIS—INCUBATIVE STAGE—AGE OF LESIONS.—There are two questions related to the disease of the day which deserve close attention and which have not received until now any scientific satisfaction. The former has, besides its importance from a scientific point of view, a great value in a sanitary and commercial aspect. The latter has not yet been determined experimentally, and consequently the appreciation of the character of the lesions has almost been entirely empirical, their age being more or less correctly estimated by their extent.

The question was presented a short time ago before the Société Vétérinaire Pratique in Paris and commanded sufficient attention to obtain the formation of a commission to carry on experiments to solve the problems as far as possible. As a member of the Société, I had the honor to be appointed on the commission, and thus gained a most advantageous opportunity to obtain valuable information for the REVIEW at first hand.

The programme laid out for the experiments consists in the purchase of twelve cows, which will be divided into five lots and submitted to the following experimentation: After being all submitted to careful tuberculin test, four will be infected by eating food, solid or liquid, containing tuberculous matter; four will be contaminated by inhalation of tuberculous powders; two will receive an injection of emulsion of tuberculous culture in the teats; one will receive it in the trachea; one into the jugular.

The animals carefully watched, and the progress of the infection and of the development of the disease being minutely recorded, they will be killed at various periods and the post-mortem made at Alfort in the presence of the entire commission. The first killing will be made after 30 days, the second after 15 more, say 45 days, the remainder at a later date decided by the commission.

Yesterday the first meeting took place, at Pouilly-les-fort, a little place close to Paris, already known to the profession on account of the experiments made there for several years by Pasteur, who demonstrated to the world the efficiency of the preventive vaccination against anthrax. The first part of the experiment was carried out. Profs. Nocard and Maussée, of Alfort, prepared and administered the various preparations of tuberculous substances. The contamination by inhalations was very interesting, the operation demanding the greatest care for fear of infection to those who gave it as well as to those looking on. With mouth and nostrils protected by gauze and wadding, Prof. Nocard sent tuberculous pulverizations for five and ten minutes into a long fumigation bag, through which the animals were made to breathe. Every part of this first seating of the commission was minutely carried out in the presence of some 30 civil and military veterinarians, who, notwithstanding a pouring rain, watched all the steps of this contamination.

We will take good care that our readers will receive information relating to the results of this experiment as early as they will be known, and as quickly as they will be established.

⁂

HEREDITY OF ROARING.—This question is pretty firmly admitted and answered in the affirmative; at least it is the opinion of many good veterinarians. And yet there are not a few who, if not ready to ignore entirely the idea of heredity, are not willing to give it the influence that is generally admitted. It is not surprising then to see the subject occupying the attention of such men as Nocard, Lavalard, Cagny, Barrier and Labat, who discuss it at the Société Centrale and publish their opinions to the effect of throwing light on the question, "Is Roaring Hereditary or Is it Not?" as it is of great importance for the breeder. There are so many cases recorded favorable to both sides of the question, that the answer is very difficult to give. Why should "Ormonde," himself a roarer, produce roarers when in England and when taken to America *not have one* roarer to his credit? Why should other similar cases occur of confirmed roarers, even to being obliged to carry tracheotomy tubes, as a stallion by the name of "Star" did, and yet have perfectly sound products? And, again, the pathological origin of the symptoms is interesting. The causes of roaring (of course we mean chronic roaring) are numerous. But among them none is more important than laryngeal paralysis, which is stated to act in 96 per cent. of the cases, and if it can be due to traumatism, pressure, neoplasm, etc., in the greatest majority of cases it is the result of nervous alterations of microbian origin, microbian intoxication.

Heredity does not, in the eyes of Prof. Labat, play the important part heretofore given to it, and for him the subject ought to be considered as follows:

(1) It is not impossible for roarers, by transferring defective conformation to their products, to have them roarers at birth.

(2) In the great majority of cases, chronic roaring is due to laryngeal paralysis, and animals affected with it do not transmit the disease itself, but a real tendency to acquire it; it is the *heredo-predisposition* to roaring.

(3) Analysis of the causes of roaring has shown that a few among them can be transmitted by way of reproduction, viz.: vices of conformation and specially predisposition to paralysis of the larynx. Consequently all chronic roarings are not hereditary; *there are no hereditary roarings.*

(4) *Heredo-predisposition* forms the most important factor in the genesis of chronic roaring; it shows itself as the prepar-

atory and predisposing condition in most cases of laryngeal paralysis, which is undoubtedly the most frequent cause of the disease.

For Prof. Labat, then, and it is an opinion which seems to be gaining ground, heredity exists for some cases, such as in those resulting from vices of conformation—there it is an indirect heredity—but it does not exist for roaring due to other causes, such as paralysis of the larynx. In those there is only a heredo-predisposition which must be prevented.

Infectious diseases playing the greatest part in the causation of roaring, its prophylaxy seems to demand the prevention of their evolution.

Another laurel for microbiologists to obtain. Who some years ago would have dreamt of such therapeuty for roaring?

* * *

Tuberculosis—Obligatory Declaration.—This sanitary measure, so important in veterinary sanitary medicine, and which in that science covers all contagious diseases, seems to be different in human medicine, at least, in some countries. In France this measure has recently been the object of action at the hands of the Académie de Medécine in Paris, thanks to the action of Professor Grancher, who succeeded in carrying a motion to the effect "that tuberculosis be entered in the list of diseases for which obligatory declaration is imposed."

This was obtained after a discussion before the same body of physicians in relation to a similar admission of measles in the same list, when Professor Grancher showed, figures in hand, that when the six great zymotic diseases are considered, variola, typhoid fever, diphtheria, scarlatina, etc., the conclusion is arrived at that it is impossible, with, perhaps, diphtheria excepted, to tell the part of disinfection in the reduction of mortality.

This being the case, Grancher asks why tuberculosis—the most fatal of all diseases—is not first among the diseases for which declaration is obligatory?—no doubt on account of sentiments to be respected, it is true, but, nevertheless, secondary. It is generally admitted that, among members of families, tuberculosis is a disease that kills, but without being named, and physicians, accomplices of the pious lie, do not dare to speak or act.

Professor Grancher has submitted to the same influence; twice he went back on what was his scientific conviction. In 1893 he wanted to ask the consultative committee of hygiene to make the addition to the list, but met with such objection that he did not dare to propose it.

In 1898 he was more daring, but was met with a "non possumus," which resulted in another failure. Roux alone stood with him.

To-day the situation differs—public opinion acts. It understands the serious nature of the danger that threatens all families, rich or poor, and the truth is asked—as well as measures of prophylaxy are required.

This measure, however, is already recommended by the extra parliamentary commission on tuberculosis of the last Congress of Berlin, and the unanimous vote which was carried at the last meeting of this commission will certainly have for result the admission of tuberculosis in the list of contagious diseases for which the declaration will be obligatory. There is no doubt that this will prove a great means of prevention to the spreading of the disease in the human family, as it does for all the other contagious diseases submitted to the same requirement. A. L.

GET READY FOR DETROIT.

In just two months veterinarians from almost every State in the union will be hurrying to this beautiful city of the Northwest to attend the thirty-seventh annual meeting of the American Veterinary Medical Association, that magnificent representative of the profession of the Western continent. The command "get ready" signifies not only the provision for the care of your practice during your absence, the packing of your grip and the securing of your railroad tickets, but it means that you should "get ready" to contribute your quota to the programme of the three days' meeting. The national association represents every phase of the legitimate science, and every man in all its varied departments will find a place where his talents will be welcomed and where his assistance will be appreciated.

If his fortunes and trend have led him along the paths of sanitary medicine, he can find no opportunity superior to this to gain the latest and most advanced thought in his department, for at these meetings sanitary medicine is allotted a large range and the brightest men of the land meet for the exchange of observations and opinions.

If, on the other hand, he is devoted to the practice of veterinary medicine, combatting the every-day diseases of domestic animals, he will find here a forum where the most successful men of the day meet for the enlarging of their own capacity by adding the knowledge imparted by their colleagues in the reading and discussion of papers upon practical subjects. Since it is impossible for the veterinary practitioner to divorce surgery from the routine of his daily work, it is necessary that he add to his other qualifications that of an adept surgeon—not only for the performance of minor operations, but the successful undertaking of those more pretentious procedures which the human physician would dispose of by the recommendation of some well-known specialist. Modern antiseptic veterinary surgery is a very different problem from the attempts of a few years ago, and he who would keep pace with the times must be alive to the rapidly unfolding methods and discoveries. The REVIEW is doing its utmost to keep its readers abreast of the progress that is being made along these lines, and we are pleased to know that its efforts are being thoroughly appreciated by the veterinarians of the country. The "Department of Surgery," conducted in each issue by the Drs. Merillat, of Chicago, is very gratefully received all over the country, if we may judge by the expressions of scores of correspondents. The painstaking compilations which they are producing in the midst of active practical work is worthy of much commendation, while the character of their productions is of a high order and thoroughly reliable. But even such efforts as these do not take the place of the actual demonstration of modern surgical methods, and in no way can this be so well accomplished as at the surgical clinics held in conjunction with the great national gathering, where the most noted surgeons of the country will have the opportunity to illustrate major and minor operative surgery. The Secretary assures us that the local veterinarians will secure any class of patient which will be required to demonstrate the various popular operations that will be undertaken, and asks that those who expect to take part in the clinics will at once notify him, in order to secure the requisite subjects. We sincerely hope that this section of the programme will receive the encouragement that its importance justifies, as we have heard so many expressions as to its helpful nature.

While we are continually advancing in the field of pathology through our great Bureau of Animal Industry and the experiment stations of the various States, in no way can the real extent of this vast subject be so thoroughly demonstrated as by the gigantic annual exhibit made by the progressive representatives of these institutions. The two exhibits that have been given have caused all to wonder at their magnitude and interest, and it is reasonable to expect that with the experience already gained the display at Detroit will be greater than either of its predecessors.

Still further, if the veterinarian is engrossed in the art of teaching, he not only will be in possession of all the varied branches above detailed, but will be enabled to engage in the deliberations of the Association of Faculties as to the best methods to employ ; and if he be a member of any of the State examining boards the same association includes among its membership representatives from such boards, where by a union of interest and exchange of thoughts the most beneficent results may be obtained.

While such an intellectual opportunity should cause every earnest man to lay aside his art for the second week in September for the benefit of his science, it may be made in addition a glorious season of recreation, convivial pleasure, and delightful association, conjoining the beauties of grand scenery *en route* with pleasant diversions at the convention city. The REVIEW will keep you posted in the meantime as to the developing programme ; but, whatever you do, "Get Ready for Detroit."

THE officers of the New York State Veterinary Medical Society are putting forth strong efforts to make the next annual meeting, which occurs at Ithaca the week following that of the American Association in September, a strong representative gathering of the veterinarians of the Empire State. With such a populous territory, with such a large number of men of national reputation, both in the domain of State medicine and the field of practice and surgery, it would seem that nothing were lacking except thorough organization and stimulated interest. Dr. W. L. Williams, chairman of the Committee of Arrangements, furnishes REVIEW readers this month with a superficial outline of the plans which are under way for the approaching meeting, and we trust that each one who can possibly reach the convention city will avail himself of the opportunity presented of making the State society the greatest in every sense of any similar organization in this country. There is not one who will not be more than repaid for his time and expense in attending, besides feeling that he has done his duty to the profession whose interest it is the function of the Society to foster and enlarge. Send to Secretary C. D. Morris, Binghamton, N. Y., for an application blank, or go to Ithaca and present your petition in person.

THE bill to create a Veterinary Corps in the United States Army failed to come to a vote in the House of Representatives prior to adjournment. While the veterinarians of the country, and particularly the Committee of the American Veterinary Medical Association, who worked with a vim and a unanimity that surprised the legislators, are doomed to a postponement in the realization of their just rights, they have awakened an interest in the cause which will be practically irresistible at the next session. The question should be thoroughly gone over at the coming meeting of the A. V. M. A., and a plan of campaign agreed upon that will offer the best promise of success next winter. The REVIEW will present the subject with some facts connected with it in its August issue, so that it will be fresh in the minds of the delegates to the Detroit Convention.

AT a meeting of the Board of Regents of the State of New York, held at Albany last month, it was voted that 24 counts be required for the veterinary student certificate for matriculates prior to Jan. 1, 1902. We congratulate the Board upon its conservative and sensible action, as it will enable the Empire State to keep well in advance of the other States in higher education and yet not place a prohibitive barrier in front of her schools.

IF Secretary Merillat fails to "show up" at Detroit with the books of the Association of Faculties, as was the case at New York, he will be very apt to suffer impeachment for high treason. As the meeting will be held close to the home of President Stalker there will scarcely be any question of his presence.

ORIGINAL ARTICLES.

TEXAS FEVER.

EXPERIMENTS MADE BY THE MISSOURI EXPERIMENT STATION AND THE MISSOURI STATE BOARD OF AGRICULTURE, IN CO-OPERATION WITH THE TEXAS EXPERIMENT STATION, IN IMMUNIZING NORTHERN BREEDING CATTLE AGAINST TEXAS FEVER FOR THE SOUTHERN TRADE.

BY J. W. CONNAWAY, VETERINARIAN MISSOURI EXPERIMENT STATION, AND M. FRANCIS, VETERINARIAN TEXAS EXPERIMENT STATION.

(*Continued from page 180.*)

Bull 9. Weight 795 lbs. when received; gained 95 lbs.

Fever on 13th, 14th and 15th days following first inoculation, 103.8 to 105.6° F. Animal kept in good condition; no prolonged fever period. Shipped to Texas in good condition. Temperature Jan. 9th, 105.8°. Jan. 11th, 105°; which appears to be a secondary reaction from the inoculation. Feb. 25th, had ticks; shows no sickness. April 24th, no sickness to date.

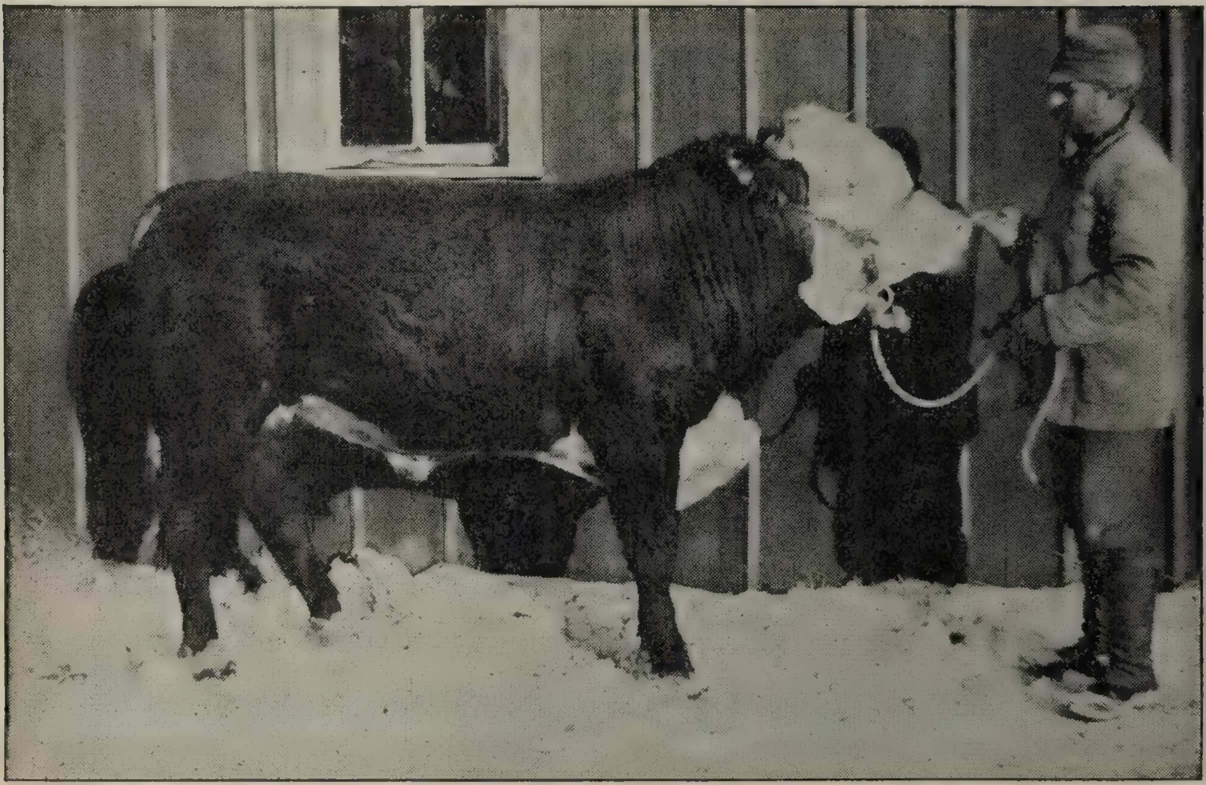


FIG. 9.—A TWO-YEAR-OLD BULL, WEIGHT 1250 LBS., INOCULATED DURING THE WINTER OF 1898, AT MISSOURI EXPERIMENT STATION.

Aug. 15th, has carried ticks through the summer and has done considerable service. Is now in good health. Reported well Oct. 1st.

Bull No. 30. Weight 815 lbs.; gained 135 pounds. Inoculated Nov. 29th with 1 cc. blood from an immune Texan steer, and reinoculated Dec. 8th with 2 cc. from a recovered native. No rise of temperature up to time of shipment. Jan 9th, three days after reaching Corpus Christi, had temperature of 103.4°. Appeared sick on Jan. 11th, temperature 104°. This may be a delayed reaction from the inoculation, brought out by shipping, or simply shipping fever. Jan. 20th, arrived at Laureles ranch, driven out 25 miles from Corpus Christi. Feb. 10th, found ticks. Feb. 15th, appears sick. Feb. 25th, carrying ticks and appears well. April 24th, has done well. May 16th, turned into pasture with cows. June 3d, sick; temperature 108°F., 7.30 A. M. June 5th; died of Texas fever, passed red water before death. Post-mortem showed enlarged spleen and red water in bladder.

Bull No. 6. Weight when inoculated 823 lbs.; gained 117 lbs. before shipping. Had a slight reaction on 7th to 10th days following second inoculation; had chill at beginning of attack, was off feed and dumpish. Recovered appetite in a few days, was shipped in good condition. This animal had fever on arrival in Corpus Christi; Jan. 9th, temperature 104.6°, either from shipping fever or a secondary reaction from inoculation. Jan. 20th, arrived at ranch 25 miles from Corpus Christi. Feb. 10th, found ticks. Feb. 15th, this bull was sick. Feb. 25th, has recovered and is carrying ticks, temperature at 4 P. M., 103°. April 24th, appears to be free from ticks; no illness observable. May 13th, was put in pasture with cows, was in strong, vigorous condition; had been well infested with ticks. June 4. Died from an acute attack of Texas fever.

A discussion of these relapses appears in the concluding section.

TOD BULLS: TABLE SHOWING GAIN OR LOSS IN LIVE WEIGHT, AND DAILY TEMPERATURE RECORDS.

The greater number of the temperatures recorded in the following tables were taken between 10 and 11 o'clock A. M., and are therefore somewhat higher than early morning temperatures. The normal in these records may be taken to range from 101 to 103° F. In the discussion of this experiment, 103.8° F. is about the lowest temperature included in a "fever period."

Group I.			Bull. 1	Bull. 3	Bull. 2	Bull. 13	Bull. 7	Bull. 14	Bull. 17	Bull. 12	Bull. 19	Bull. 15	Bull. 26	Bull. 4	Bull. 21	Bull. 18
Weight when received, lbs...			272	285	300	382	390	390	410	412	428	455	480	380	415	445
Weight when shipped, lbs...			310	310	290	400	390	400	485	430	475	775	500	425	445	530
Gain or loss			+38	+25	—10	+18	0	+10	+75	+18	+49	+20	+20	+45	+30	+85
		Days after Inoculation.														
Nov.	7		102.	103.	103.	102.5	......	102.8	102.5	104.	102.5	103.	102.5	103.5	......	.....
	11	4	102.9	103.2	103.1	102.8	104.8	103.	102.9	104.	104.5	104.5	103.2	103.6	104.4	101.5
	15	8	106.4	103.4	105.4	103.2	104.8	103.2	104.2	105.4	104.	106.4	103.3	104.2	104.1	103.
	16	9	105.4	104.	104.4	104.	104.	103.	105.2	107.2	103.8	103.6	103.5	104.1	......	104.2
	17	10	105.6	104.	105.6	103.9	105.8	103.8	104.	107.4	104.1	103.5	106.2	104.5	......	103.
	18	11	106.2	106.	103.9	106.5	104.4	104.2	105.	105.8	105.	103.8	103.4	104.	104.	104.1
	19	12	105.3	106.	105.6	108.4	......	103.7	104.	107.3	......	104.	103.5	......	......	103.2
	20	13	103.5	102.4	105.7	107.2	103.6	104.	104.5	103.	104.5	103.4	104.4	103.4	103.6	103.2
	21	14	104.2	103.5	105.7	104.	103.3	104.4	105.5	104.5	104.8	104.4	102.7	103.9	104.2	104.3
	23	16	103.4	103.3	104.6	102.	104.1	103.8	104.8	104.9	103.4	102.	104.4	103.8	102.8	102.6
	24	17	103.1	......	105.1	104.5	......	......	102.8	104.	......	......	......	......	......	......
	25	18	104.	102.8	104.6	104.8	105.8	102.2	102.8	103.	106.	103.	104.2	105.8	102.1	101.6
	26	19	102.	103.	104.	104.1	103.4	103.2	103.4	104.5	102.3	102.8	103.5	103.8	102.3	103.6
	27	20	102.2	105.	101.	101.2	103.4	101.6	102.2	104.8	102.	102.	102.	102.2	104.	102.4
	30	23	103.	103.5	103.4	104.2	103.5	102.8	105.	105.	102.	105.	103.4	102.	103.2	103.2

TOD BULLS: TABLE SHOWING GAIN OR LOSS IN LIVE WEIGHT, AND DAILY TEMPERATURE RECORDS.—Continued.

Group I.			Bull. 1	Bull. 3	Bull. 2	Bull. 13	Bull. 7	Bull. 14	Bull. 17	Bull. 12	Bull. 19	Bull. 15	Bull. 26	Bull. 4	Bull. 21	Bull. 18
Dec.	2	25	......	......	......	......	104.5	104.1	103.3	103.5	103.8	104.7	103.6	103.9	103.5	104.
	3	26	102.1	101.8	103.4	105.5	......	103.9	103.5	102.2	......	105.8	......	103.	......	103.3
	4	27	103.2	102.3	103.6	102.5	103 2	103.9	103.1	103.7	102.9	106.2	104.8	102.8	102.	101.9
	5	28	......	......	......	......	......	......	......	......	......	......	......	......	......	......
	6	29	103.6	103.3	104.5	103.	105.2	103.6	103.5	103.6	105.6	102.5	102.	104.	103.3	103.6
	7	30	102.	103.6	103.6	100.6	104.2	104.	102.1	98.4	104.2	103.	101.6	104.	102.1	103.2
	8	31	......	......	......	......	......	......	......	......	......	......	......	104.4	......	104.
	9	32	103.	103.	102.4	102.2	103.4	104.4	102.3	102.6	103.1	103.	102.6	105.	103.1	104.1
	10	33	104.2	101.6	104.2	104.	105.	103.6	101.8	103.4	103.2	102.6	102.4	105.8	104.	104.
	11	34	104.3	105.9	105.8	102.5	104.7	103.5	......	105.4	102.8	......	102.	105.4	104.2	103.
	12	35	104.2	104.6	105.4	103.6	104.2	103.8	103.	105.6	102.4	102.	101.8	105.	104.	104.2
	13	36	103.8	105.	105.2	103.	103.	103.5	......	105.4	102.	......	......	104.	104.6	103.6
	14	37	103.	104.2	104.4	103.8	102.	102.8	103.2	103.2	102.	103.	102.2	103.8	......	......
	15	38	102.6	103.	104.2	102.6	102.6	103.	103.4	104.2	102.5	103.4	103.5	103.	104.2	103.8
	16	39	101.6	103.8	104.	102.	102.5	102.	102.6	101.8	102.4	103.6	103.8	102.8	103.4	102.8
	17	40	103.	103.	103.6	102.6	103.	102.4	104.1	102.6	102.5	104.2	105.4	103.	104.2	103.
	19	42	103.4	102.4	104.4	105.4	103.4	102.4	104.7	103.7	102.4	104.8	106.8	102.8	103.1	104.
	20	43	102.	101.2	103.	101.2	102.6	101.	103.	101.6	102.4	104.	105.	103.	104.	101.4
	21	44	101.	102.8	102.6	103.2	103.8	101.2	101.8	102.6	102.6	104.1	103.2	102.7	101.6	102.
	22	45	103.	104.	103.6	101.6	104.2	102.4	104.	102.	102.4	105.	102.6	103.8	102.6	102.2
	25	48	103.6	102.5	104.5	103.8	102.	103.7	103.4	103.8	102.2	104.	101.8	102.6	102.4	104.

Tod Bulls. Group II.			Bull. 8	Bull. 22	Bull. 20	Bull. 23	Bull. 24	Bull. 16	Bull. 10	Bull. 28	Bull. 25	Bull. 5
Weight when received, lbs.			370	435	550	680	365	402	480	498	507	600
Weight when shipped, lbs.			380	525	610	710	415	490	585	545	545	680
Gain or loss.			+10	+90	+60	+30	+50	+88	+105	+47	+38	+80
		Days after Inoculation										
Nov.	11		.....	106.	103.4	.....	.....	102.2	.. ..	.....	103.4	103.3
	15		103.	104.	103.6	102.	104.6	103.2	104.	104.	104.	104.
	17	2	103.8	103.2	102.	.....	103.5	102.	.....	103.8	103.3	.....
	18	3	104.	103.	102.7	102.	102.8	101.1	102.	103.4	103.	103.
	20	5	103.5	102.6	102.3	100.9	103.4	102.4	101.9	101.8	102.8	101.9
	21	6	104.4	104.7	102.8	.....	102.3	103.4	103.8	104.3	101.1	.....
	23	8	103.	102.8	103.	101.	103 5	103.8	102.8	105.	101.8	102.3
	25	10	103.1	106.3	103.4	104.7	105.6	102.6	103.	103.	102.2	102.5
	26	11	104.	103.5	101.7	104.	102.4	102.2	104.	102.5	102.3	102.4
	27	12	103.8	104.	102.4	105.	103.8	101.2	103.	104.2	101.8	104.8
	30	15	103.4	103.5	102.8	105.4	103.6	103.5	102.	103.	101.8	102.6
Dec.	2	17	104.4	103.6	104.2	104.6	103.5	103.9	103.2	104.5	102.9	103.
	4	19	104.8	104.2	101.6	106.8	102.	102.8	101.4	101.4	101.6	102.1
	6	21	103.3	103.4	102.8	107.2	102.3	106.	101.6	102.8	102.1	102.5
	7	22	103.1	102.2	102.8	101.8	103.	103.6	101.8	102.8	100.6	102.8
	9	24	103.	103.	103.	101.5	102.5	102.2	100.2	100.9	101.4	102.4
	10	25	105.6	103.	103.	102.	102.8	102.6	103.2	104.	100.	103.
	11	26	104.	103.	102.4	103.1	104.3	103.2	102.1	101.	101.5	102.
	12	27	104.8	102.4	103.	102.8	103.	103.2	103.7	103.	102.	103.4
	14	29	104.6	103.4	104.	100.	103.	103.	105.6	105.	103.6	104.
	15	30	104.	104.9	104.6	101.8	104.4	101.9	106.	103.9	104.4	106.5
	16	31	103.6	104.	103.8	101.	103.	102.	105.8	103.	103.	105.8
	17	32	104.	105.	104.6	102.6	104.6	103.3	.....	105.1	102.6	104.2
	18	33	.....	.....	....	.....	.....	... .	105.	.....	.....	104.2
	19	34	104.	103.5	104.4	102.4	103.2	103.9	103.2	104.	105.	103.
	20	35	103.2	103.	104.2	103.8	104.2	101.6	104.6	104.4	104.8	103.8
	21	36	101.8	102.6	104.	102.8	103.9	102.2	103.7	104.	105.8	102.2
	22	37	104.	104.2	104.	103.4	107.1	101.8	104	105.	105.	104.3
	25	40	102.8	102.2	103.	103.8	103.7	103.6	103.3	103.6	104.9	102.8
	26	41	103.5	.....	103.3	103.	104.2	.....	.....	103.8	103.2	103.5

—I cannot see how some practitioners can do without the Review. They must be without ambition; drones in the profession. Long live American Veterinary Review.—*P. A. Girard, M. D. C., New Richmond, Wis.*

Tod Bulls. Group III.			Bull. 58	Bull. 11	Bull. 29	Bull. 9	Bull. 30	Bull. 6	
Weight when received, lbs.			505	620	715	795	815	823	
Weight when shipped, lbs.			640	730	730	890	950	940	
Gain or loss			+135	+100	+15	+95	+135	+117	
		Days after Inoculation							
Nov.	11		.....	102.8	102.5	102.8	102.9	103.3	
	15		102.2	104.	102.3	102.3	105.5	103.	
	17		102.5	.....	.....	.....	104.	.....	
	18		102.4	101.8	100.5	102.2	100.4	102.9	
	20		102.2	101.3	101.	102.2	101.2	100.8	
	23		103.9	101.9	102.2	102.5	102.	103.5	
	25		103.	102.2	100.5	102.3	101.8	102.3	
	27		102.8	102.1	103.6	105.	103.	101.9	
	29		103.6	102.4	103.	103.	102.8	103.4	1 cc. Texas Steer Blood.
Dec.	2	3	102.9	103.	102.2	102.2	102.5	102.6	
	5	6	102.	101.8	99.5	101.	100.4	102.	
	7	8	101.	100.9	101.6	101.2	101.	102.4	
	8	9	102.8	102.	101.7	103.2	102.	101.8	2 cc. "Recovered" Native "Spot."
	9	10	99.8	101.8	101.2	99.6	100.5	101.4	
	10	11	102.4	106.3	103.	102.6	102.	101.3	
	11	12	.....	106.1	.....	.....	102.2	.....	
	12	13	102.4	106.2	102.4	105.6	102.2	103.	
	13	14	103.	105.	102.8	105.	102.	103.	
	14	15	102.6	104.2	103.4	103.8	101.8	102.3	
	15	16	101.4	103.	103.5	102.6	101.	105.4	
	16	17	102.3	103.	103.4	101.	102.2	105.8	
	17	18	103.	102.4	101.8	102.3	102.6	102.8	
	18	19	.....	102.2	102.4	.....	.....	103.8	
	19	20	104.	102.1	102.4	102.2	102.4	101.5	
	20	21	100.8	100.	101.7	101.	101.2	101.4	
	21	22	102.2	101.	104.1	101.8	102.4	101.6	
	25	26	102.6	101.8	103.	101.	101.2	103.8	
	26	27	103.8	102.8	101.9	102.	101.8	102.2	

This experiment is of interest on account of the age of two of the individuals. This lot consisted of three pure bred Hereford bulls, raised in Missouri. Two of these, No. 534 and No. 540, were about 2 years old and weighed respectively 1252 lbs. and 1100 lbs. No. 3 weighed 550 lbs. They arrived at the Missouri Experiment Station December 3, 1898, and were held until the effects of the inoculation had passed off, before sending them south.

The first inoculation was made December 8th. Each bull received 2½ cc. of blood from a northern steer that had been rendered immune to Texas fever by artificial tick infestations.

Bull 534 took sick on the 12th day following. On the 13th day the fever was 105.2°. The fever continued, though not so high, until the 18th day, after which it fell to the normal. During the fever the bull was off feed, gaunt, and laid down much of the time.

Bull 540. Fever appeared on the 13th day, with a maximum of 104.8°. It was of short duration, he continued eating, and did not appear to be seriously sick.

Bull No. 3. Fever appeared on the 6th day, temperature 104.3° F. Had fever and did not eat well for six days. After this the temperature fell and the bull's appetite returned.

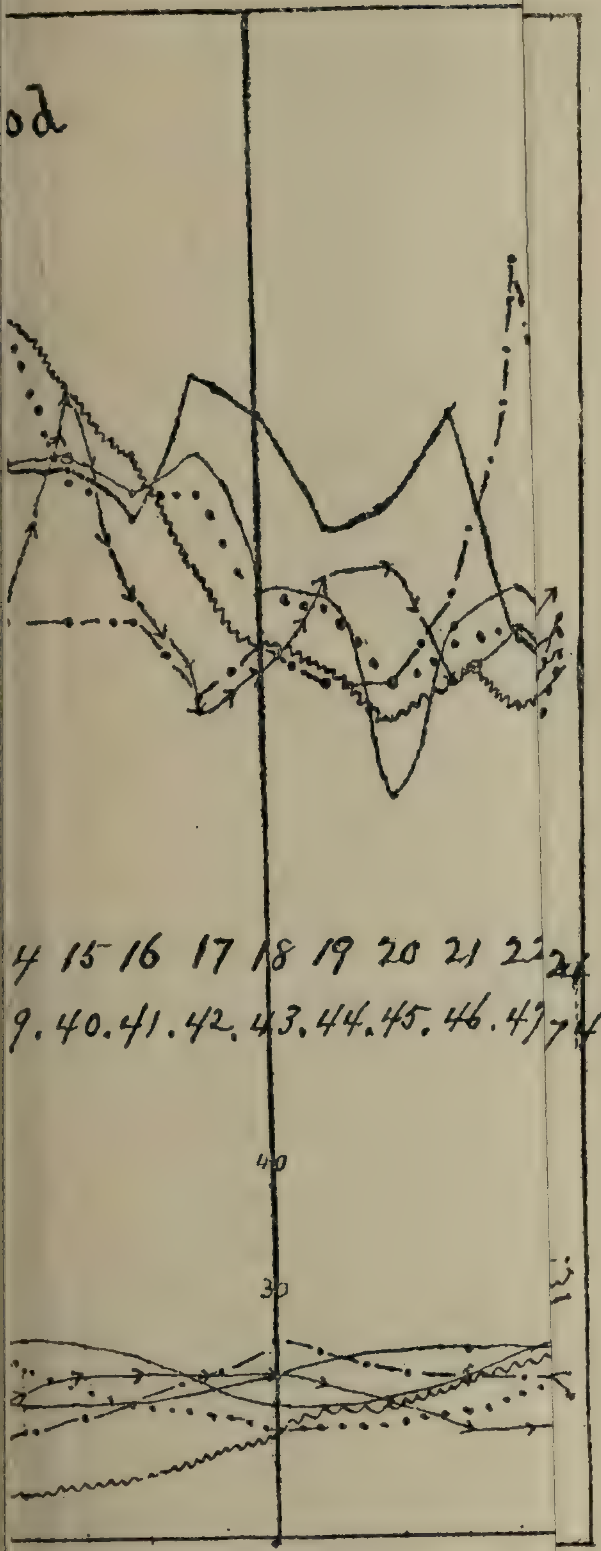
The second inoculation was made Jan. 2, 1899. Each bull received 2½ cc. of blood from an immune Texan steer.

Bull 534 showed only a mild reaction from this inoculation. This possibly was a secondary reaction from the first inoculation.

Bull 540 showed fever on the fourth day. Jan. 6th, fever 105.4°; bull lies down much of the time. Jan. 7th, 106°; bull off feed. Jan. 8th, 103.7°; refuses food. Jan. 9th, 101.5°; eats hay only. 12th, temperature 100° F.; eats quite well. From this time the bull remained in good health.

Bull No. 3. Fever followed second inoculation. Jan. 12th, fever 103.8°. Jan. 13th, fever 105.6°; bull off feed and has diarrhœa. Jan. 14th, fever 104.6° F.; Jan. 15th, fever 104.5° F., urine clear. Jan. 16th, fever 105.8° F. Jan. 17th, 104.5° at 3 P. M. Jan. 18th, fever 104.6°, bull eating. Jan. 19th, 104.8°. Jan. 21, 103.5°, fever falling. From this time on this bull appeared quite well. During his stay at the Station he gained 65 lbs. in weight.

A third inoculation was given to these bulls. Each received 3 cc. of blood from an immune Texan steer on Feb. 22d. The



x head of calves, during immuni

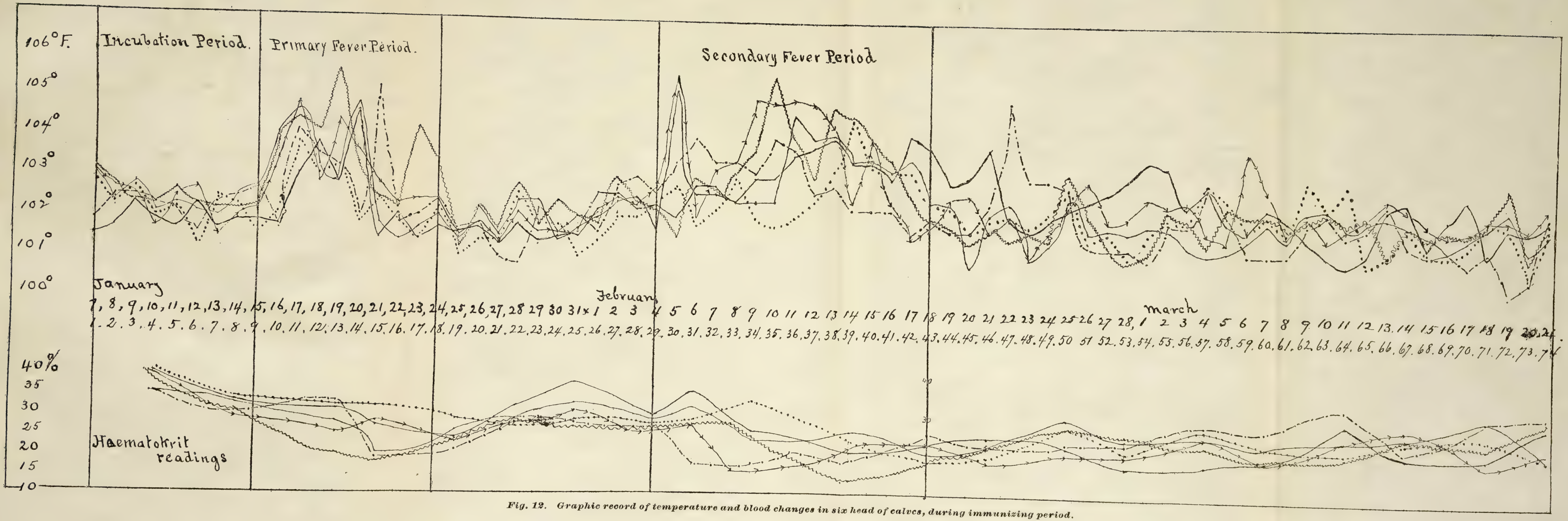


Fig. 12. Graphic record of temperature and blood changes in six head of calves, during immunizing period.

bulls were shipped south Feb. 25th. They arrived in good condition at the ranch in Harrison county, Texas, March 2d.

Clinical notes after shipment.—March 28th. The bulls are in fine condition. Found one tick on Nos. 534 and 540. None on No. 3. They are fed on bran and oats twice a day, and allowed to run on a good pasture.

April 3d. The bulls run daily with the native cattle. They are apparently well.

April 10th. The bulls appear healthy. Found six ticks on Nos. 534 and 540. No ticks on No. 3. The bulls run freely with native cattle, but are housed and fed at night.

April 24th. The bulls are doing well. But few ticks have been on them.

May 30th. The bulls appear in good health.

June 14th. Bulls were infested with ticks. No. 534 has fever, temperature 104.5° F.; gave salts. No. 540 has fever, temperature 106.5° F.; gave salts. No. 3 has no fever, well infested with ticks.

June 16th. Bulls recovering. No. 534, fever falling, temperature 102.5°, desires food. No. 540, fever falling, temperature 104.5°, appears better. No. 3, no fever, appears normal.

June 18th. Bulls all doing well. No. 3 has shown no signs of fever.

June 19th. Bulls appear well. July, no report.

August 18th. Bulls running with native cows. They all appear well. No. 3 has never shown any signs of fever.

OVERALL.—84 HEAD OF REGISTERED HEREFORD BULLS.

This lot consisted of 84 head of Hereford bulls, all bred in Missouri. Their ages ranged from 7 to 12 months. They were shipped in very rough weather, and on arrival at the ranch in Coleman county, Texas, they were very tired and drawn. They were fed cotton seed, which caused a considerable number of them to have scours. On December 22, 1898, they were inoculated with defibrinated blood from a two-year-old immune steer, bred on the ranch. Sixty-four were given 1 cc. each of the blood and the remaining twenty were given 2 cc. each. These calves became sick at the usual time after inoculation (about 10 days), and about one-half of them were severely affected. Three of the number died. At this time the manager noticed that many of them had some ticks on them. By April 24th six had died, and the entire lot showed sickness. About June 1st they were turned into a large pasture of thirty thousand acres, among the range cattle, and have remained there the whole summer. The owner says they are doing very nicely (August 15, 1899), and up to this time seven had died of fever. Six have died of blackleg, and one from accident. He says that in his opinion they should have been kept up in a dry lot until the inoculation fever was over before exposing them to the ticks.

BURGESS.—68 HEAD OF REGISTERED SHORTHORNS.

This lot consisted of 68 head pure bred Shorthorns, whose ages ranged from 8 to 12 months. They were raised in Kentucky, and arrived at the Blue Mound Ranch, in Wise county, Texas, November 24, 1898. On January 4, 1899, each one received subcutaneously 1 cc. of defibrinated blood from a two-year-old steer that had been raised on the ranch. The owner of these cattle reports, under date of March 4, 1899, that four of the calves have died and that the remainder have been reduced in flesh, but appear healthy otherwise. About June fever appeared among them and about one-half of them showed severe symptoms; by July 24th twelve had died in all.

(*To be continued.*)

OPHTHALMIA.*

By G. Ed. Leech, V. S., Milwaukee, Wisconsin.

When the subject of periodic ophthalmia came up at the last meeting, I little thought that I would be called upon to write a paper upon the subject, and when the Secretary wrote me in regard to it I did not have any great desire to take it up, for it is with some such feeling of dissatisfaction as must fill the mind of a geographer who is about to enter upon the description of a country into the heart of which no traveller has ever yet been able to penetrate, that I do it. May we be able to set about the description of a disease whose nature and cure even yet remain to be developed.

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* Read before the Wisconsin Society of Veterinary Graduates.

It would be asserting too much to say that we do not understand more about it than the former practitioners of "horse medicine" did. Science has shed its light upon and much improved our knowledge of diseases of the eye, as well as those of other organs, but all art and practice have failed to furnish us with anything in the shape of a remedy by which we are able to arrest this one in its destructive course, or prevent its almost sure return and fatal termination, and therefore in point of naked fact, what we have professed to learn concerning periodic ophthalmia has turned out of very little practical use to us. Still it is our duty to record what we do know and to lay down such rules for the guidance of future investigators as our experience has put us in possession of. And with such views as these, rather than with great prospects of proving of much benefit to our suffering patients, must we enter upon the subject of this paper.

This is, indeed, as has been said of some other diseases, "The bane of horse flesh." What can be more annoying to the feelings of the owner of a good horse than to be told that what he took to be simply a cold in the eye, or a weak eye, is likely, nay almost sure, to prove in the end a case of blindness, and as it is not within the skill of his medical adviser to prevent this fatal termination, he had better avail himself of the first opportunity to dispose of him. Such advice as this is enough to make him exclaim: "Throw physic to the dogs; I want none of it."

Name.—Among the various appellations that have been applied to it, we are still using the one given it by the French veterinarian who preferred it on account of its relapses, as though it were a fresh disease, after having been absent for a more or less considerable time. Prof. Coleman called it specific ophthalmia, the same being applicable to glanders, grease, azoturia, etc. The earlier writers called it moon blindness, or lunatic blindness, claiming that as the moon changed the horse gradually recovered his sight; some also called them moon eyes. Mr. Fearon called it gouty opthal; Mr. Spooner, hereditary ophthalmia, and Mr. Croxford asks why it may not be called constitutional ophthalmia, and goes on to say that after all the knowledge we have on the subject, this seems to him the one most appropriate to use.

The Symptoms.—The symptoms, together with the history attached to them, are sufficient to give the practitioner a correct idea of the nature and progress of the disease. One of the most common accounts one gets is that the horse was all right the night before and that something must have gotten into the eye during the night and, indeed, the half closed aspect only verifies the statement. The upper lid droops on the corner to shut out the light, tears are produced in that quantity that they cannot be carried off by the puncta lachrymallis, and as a consequent result flow over the lower lid and stream down the face; both eyelids, together with the venous vessels in the immediate vicinity of the eyes, are tumid and fuller than ordinarily. What little is visible of the globe of the eye appears dull and sunken, the organ is very intolerant to light; and, upon reflecting the lids, causing the ejection of the membrana nictitans, we are given a view of the membrana conjunctiva reddened and inflamed, commonly of the sub-acute character and more or less tumid from infiltration. The circumference of the cornea sometimes exhibits a broad nebulous circle, being an extension of that which in the human is called arcus senilis.

In the human eye where there is an arcus senilis of the cornea a similar opaque ring exists around the margin of the crystalline body. Is this the case in the horse under disease? At the beginning the anterior chamber of the eye commonly preserves its lucidity, so that we distinctly view the iris and pupil through it, the latter much contracted, the former unchanged in color, but in the course of two or three days afterward, and sometimes on the very day of the attack, the chamber becomes obscured by a dingy white or amber colored deposit seen floating within it, through which the pupil is hardly discernible, contracted as it is to the breadth of a broad line, and looking more like the black eye of a garden bean than the ovoid aperture it was before. Supervening upon this we, in some cases, have obscuration of the cornea taking place, arising from an extension of the conjunctival inflammation over it, and this, in very severe cases, is so intense that the vessels carrying red blood are perceptible upon its surface, shooting from all sides of the circumference into a sort of circulus vasculosus, from which others proceed after the manner of radii toward a common centre. The obscuration of the cornea, though it may still leave the lymph effused into the chamber of the eye visible, precludes us from distinguishing the pupil and the iris and it is not until the inflammation has abated that we again regain a view of those parts, and this constitutes the first or inflammatory stage of ophthalmia, which generally lasts from three to ten days or longer, according to the intensity of the inflammation, differing only in different stages. In the 3d or 4th stage we see through the anterior chamber the iris, murky and darkened, altered in color and lustreless, with the pupil contracted as much as ever but not evincing that sensitiveness to light which it did in the inflammatory stage.

Within the chamber and gravitating toward the bottom of it are to be discerned flakes or flocculi of whitish or yellowish lymph, effusions, as we suppose, from the vessels which secrete the aqueous humor. There is no longer the overflow of tears on the face or the conjunctival inflammation, showing clearly that the inflammatory stage is passed, leaving only its consequences behind and the eye appears to recover from day to day until there is a relapse again. Relapses are looked for as a matter of course, and yet there are cases where there has been but one attack and that one not of a destructive nature.

The changes that the structure of the diseased eye undergoes are with few exceptions the result of the excessive inflammation, and in general require some considerable time for its completion. The first attack, mild in its nature and not of long duration, may leave the eye altered only in such respects as in the course of a long intermission may be rectified. Commonly after the second attack and occasionally after the first there will still remain more or less haziness of the cornea, through which we perceive the iris lustreless and murky in its aspect, the pupil contracted and without any of its natural bright blue to be seen. The corpora nigra also appears more pendulous than usual, wanting their jetty blackness and on occasions exhibiting light specks or opacity, and every subsequent attack will add to these structural changes.

Morbid Anatomy.—D'Arbovals, the eminent French veterinarian, says that observation shows that an absence of any distinct chambers containing aqueous humor, nothing, in fact, but a single cavity remaining; sometimes the iris appears lacerated, detached from the lens, reduced to a very small volume, its capsule only remaining perhaps thickened and opaque; at other times the lens is of its natural size, its capsule being opaque, with some white spots in its substance and concretions upon its inner surface. The posterior portion of the crystalline lens is thickened and indurated, almost as if it had been boiled, and it reflects a bottle-green color. The fibres of the iris surrounding the lens on some occasions become osseous and in the place of the vitreous humor, resulting from its decomposition, we find a viscous orange-colored fluid heavier than water. Instead of the retina there is a fibrous membrane behind the crystalline, the optic nerve is flabby and softened.

Geldings are more liable to suffer from this disease than mares, and by some writers it is supposed that there is some connection between dentism and ophthalmia. The eye most subject to this disease is the very small dark looking one, which does not disclose any appearance of the white, wall or watch eyes seeming to be exempt.

The causes of periodic ophthalmia demand the greatest attention from us, both upon account of the light which they shed upon the nature of the disease and the suggestions they furnish for its prevention. Hereditary influence is one of the causes which some of the profession claim it arises from, and no doubt it can be well sustained, for the records show that in those countries where there is no restriction as to what can be used for breeding, they have a larger percentage of the disease, but there is some doubt in my mind as to whether in this case it is the disease that is transmitted or only the predisposition. If this is answered "yes," how then is it that the disease so much confines itself to horses of certain ages and situations? If "no" is the answer, then ask yourself why the production of the disease under certain conditions and states of excitement can be most satisfactorily accounted for. I am still firmly of the opinion that it is predisponent only and not excitant.

We now come to the question: whether this disease is constitutional or local; or, in other words, is it due to some microorganism in the blood or is the predisposition inherent in the formation or excitability of the eye? These are most interesting questions of which various facts and observations, current among us, may be brought forward by investigation. But it matters not whether this is called hereditary or due to an original predisposition, it amounts to one and the same thing, and I will venture to say that this is by far the most frequent cause of the disease; but while I make this assertion, I stand ready to admit that it also arises from a variety of other causes, quite adventitious and unconnected with this source. Among these may be mentioned indigestion, miasma, neuritis, dentition, debility from overwork, depletion from blood-letting, high feeding, too much confinement and sudden exposure to light. It is also a very noticeable fact that those horses not accustomed to domestication are, generally speaking, free from it and it is noticed to be more prevalent in poorly ventilated stables, the same as other constitutional diseases.

To what then is ophthalmia to be attributed? The advocate of hereditary influence answers: to the circumstance of the parent having had it. While others will say, "no," but to nervous influence, to heat, to plethora, to a contaminated atmosphere. For my own part, however much hereditariness or other causes may predispose the animal to take the disease, I cannot help thinking that many horses who now contract ophthalmia in stables would escape in situations in the open air; and that in stables we find the number of cases proportionately less according as the animal at the trying time of life (between 4 and 6 years) is moderately fed and worked and kept in an uncontaminated atmosphere. I believe that anything that will excite commotion in the system at this period is liable to affect the eyes, though the eye is not so liable to be affected as the membrane lining the air passages; most young horses at this time of life, on being stabled, are sure to be afflicted with some catarrhal or bronchitic trouble, as strangles, influenza, swollen limbs, diarrhœa, etc. I cannot, therefore, after viewing these cases from all sides, hesitate in pronouncing this disease constitutional and not local; not a single conjunctival inflammation, although the conjunctiva is a participant in it, but essentially and primarily a disease of the internal structure of the eye. Just how these structures become affected I cannot decidedly affirm, but only venture upon an opinion that the blood is the medium of contamination, which is only one opinion among many others just as deserving.

The treatment for this disease is very unsatisfactary, and I will only say that the operation of tapping the aqueous chamber is recorded as early as 1841, and was the result of an accident—recorded by Dr. Price, of Cork.

Sympathetic Ophthalmia ("Diseases of the Eye," by Norris and Oliver.) This case is reported by Deutschmann, and is of more than usual interest because the man died of carcinoma of the stomach. The changes found in the sympathizing eye, in the opinion of Deutschmann, must have been the result of a process that necessarily was limited to the visual apparatus from beginning to end.

A man thirty years old had undergone an unsuccessful operation upon his right eye six months before; inflammation associated with great pain followed and sight was ultimately lost. The patient when first seen presented the following conditions: In the right eye was phthisis bulbi and occlusion of the pupil; the cornea was clear, though there was a scar at the limbus marking the point where the incision was made at the time of the operation; slight ciliary injections were also present, and the eye was soft and extremely sensitive to touch or pressure. The other eye was sound, so far as external appearance and vision was concerned. The ophthalmoscope, however, showed a red papilla with indistinct edges, the vessels being dilated and the surrounding retina cloudy: the patient refused absolutely to submit to an operation, so he was put through an inunction, sweating and iodide of potassium. It may be well to add that there was no evidence of any syphilis, though the man was very pale and had a cachectic appearance; he had no fever and complained of nothing but a trouble in his stomach. The treatment with the above formula proved fruitless, the primarily affected eye grew less irritable and gradually lost its sensitiveness to pressure, while the neuro-retinitis in the other eye increased and vision soon began to fail, followed by the appearance of fine opacities in the vitreous body. The patient was lost sight of, and when next seen the vision in his good eye was $\frac{1}{15}$ and there was present pronounced neuro-retinitis, opacities in the vitreous body and beginning ciliary injection; the other eye showed no further change. The cachectic condition of the patient seemed worse, and he presented the appearance of one afflicted with carcinoma. He still refused to allow an enucleative, so he was put under active treatment, with a view to bettering the condition of the other eye, the eye in which the sympathetic ophthalmia was present. Things continued to go from bad to worse; posterior synechia appeared, and the vitreous body became so cloudy that it was not possible to see the fundus. The vision sank to recognizing the movement of the hand, the general condition grew worse until there was no longer any doubt of the existence of carcinoma of the stomach. He died a few days later.

An autopsy was obtained and both orbits, the eyeballs, the optic nerves and the chiasms were secured for examination. It may be mentioned that at the autopsy the meninges showed nothing abnormal, the right eye was slightly atrophic, the optic nerve entrance decidedly spread out and infiltrated throughout with round cells. The trunk of the ciliary nerves at this point present nothing abnormal; sometimes here and there in the sheath a round cell would be noticed; the tissue of the optic nerve itself was abundantly infiltrated with round cells, especially in the pial septa. The walls of the blood vessels in the papilla were richly infiltrated with round cells. The retina, especially in the nerve-fibre layer, was markedly infiltrated and at points was separated from the choroid by an exudate, the vessels of the retina participated to the same extent in the process. The retina in the vicinity of the ora-serata did not show much infiltration, but was simply atrophic. The choroid was atrophic very generally and the pigment epithelium at points was detached and partly atrophied. Both the retinal infiltration and the choroidal infiltration were less pronounced near the ciliary region. The vitreous was detached anteriorly and posteriorly and transformed into a fine fibrous tissue.

The sclera was slightly infiltrated at the posterior pole; infiltration of the sclera, as well as the subconjunctival tissue, was noticed at the limbus of the cornea. The cornea was also infiltrated and at its upper border was to be seen a scar, along the course of which cell infiltration was very noticeable. The iris and ciliary body showed atrophy of the pigment elements, posterior synechiæ was present, the synechiæ consisting of nucleated fibrous tissue containing round cells, particles of pigment and endothelioid cells, forming a tissue which completely closed the pupillary opening.

The anterior chamber contained an exudate that consisted of round cells and fibrin; especially noteworthy was an anterior synechia unassociated with a corneal scar; there was hardly more than a rudiment of the lens remaining.

As regards the condition of the second eye, the optic nerve where it passed into the eye-ball was richly infiltrated with round cells and this was particularly noticeable in the pial-septa; the ciliary nerves at this point were intact, except that here and there a round cell could be noticed. The papilla was very much swollen and infiltrated with round cells and the sheaths of the central vessels participated in this process. The retina, especially in the fibre layer and as far forward as the ora serrata, was the seat of round cell infiltrations, the infiltration showing even to some extent in the ora-serrata. The choroid was richly infiltrated, the cells sometimes occurring in little groups or heaps, and sometimes being uniformly distributed throughout the tissue. The pigment epithelium was loosened. The round cell infiltration of the choroid appeared to be less pronounced a short distance forward from the equator, but beyond this up to the ciliary body and in the latter the cell infiltration was abundant. The sclera in general was intact, though the walls of the small blood vessels penetrating the sclera were infiltrated.

The vitreous body was somewhat shrivelled and at some points was detached from the retina; throughout the vitreous body were to be seen numerous cells, partly small, round cells, partly large cells, with vacuoles and containing several nuclei. The posterior chamber contained coagulated fibrin mixed with round cells. The lens was intact except that there was an abundant pigment deposit at the anterior capsule and in addition to this an exudate that soldered the anterior capsule to the posterior surface of the lens. The ciliary body was densely infiltrated with round cells. The anterior chamber contained a fibrinous exudate rich in cells. The iris was infiltrated throughout with round cells and the cornea showed a slight infiltration at the scleral border, as did also the sub-conjunctival tissue at this point. The external sheath of the optic nerve of the primarily affected eye, all the way up to the chiasm, was only moderately affected; the inner sheath, however, was considerably infiltrated with round cells, the infiltration being here and there quite dense and at other points more diffuse. The cell infiltration was pronounced in the pial-septa. At the chiasm the inner sheath of the nerve was markedly infiltrated. The pia-mater was infiltrated only in the immediate vicinity of the chiasm ; otherwise it was perfectly normal.

The other optic nerve showed also pronounced round cell infiltration of the inner sheath at the chiasm. This cell infiltration continued with variable intensity all the way down to the second eye.

Both orbits were normal and there was here no suggestion of involvement on the part of nerves, muscles or blood vessels. The ciliary nerves whereever met with in the sections were perfectly normal. The brain and its membranes were normal. Micro-organisms were found in both eyes and also in the optic nerves. The organisms had somewhat the appearance of gonococci and in the primarily affected eye was observed to be most numerous in the ciliary body, iris and choroid, especially in that part of the choroid near the papilla. They were also to be seen in the retina, in the papilla and about the central vessels. In the optic nerve organisms were found in the nerve trunk and in the walls of the smaller blood vessels, which pass through the inner sheath of the nerve. No organisms were found in the outer sheath of the nerve. The condition was the same in both optic nerves and in the chiasm. Some few organisms were found in the pia-mater in the immediate vicinity of the chiasm. In the second eye micro-organisms were found to be most abundant in the posterior part of the eye, just as was the case with the first eye. There were no organisms in the orbits.

It will be remembered that neuritis optica existed for some time in the second eye before there was a disturbance of vision. Deutschmann thought that the neuritis was produced by the chemical and metabolic products that precede the migration of the organisms and that it was only where the latter had traversed the optic nerves and passed into the second eye that the disease spread with rapidity and with its usual destructiveness. He regarded the optic nerves and chiasm as the route followed by the organisms and believed that the pial sheath of the nerve and the nerve trunk were the parts preferably attacked, and he concluded by stating his position again with respect to the pathogenesis of sympathetic ophthalmia, a position which is well known.

Such a case is of undoubted value, for if a general infection can be absolutely excluded we are not far from the solution of this problem. The observation, however, is an isolated one, and while we cannot but appreciate its value, it will never be looked upon as conclusive, so long as the experimental side of the question remains so one-sided.

It may be added that a general infection cannot possibly be excluded without a bacteriological examination of the blood and other organs, as such general infection, especially with streptococci, is not infrequent as a terminal event in various chronic diseases, including cancer of the stomach. The many negative results do not disprove the bacteric origin of sympathetic ophthalmia, but before regarding such a theory as proved, the specific organisms must be identified, and especially should this be the case with an infection like sympathetic ophthalmia, a disease the pathogenesis of which really does admit of more than one reasonable interpretation.

DOG DISTEMPER.

BY COLEMAN NOCKOLDS, M. D., V. S., GRAND RAPIDS, MICH.

(*Concluded from page 187.*)

Pathological Anatomy.—The lesions observed in the respiratory type of distemper are due to rhinitis, laryngitis, bronchitis, and those changes which are peculiar to the different chest affections. The nasal mucous membrane is swollen and œdematous; it is covered with a thick greenish purulent exudate, which is also present on the lining membranes of the sinuses of the head. Laryngeal and bronchial mucous membrane is red, tumefied and ecchymotic; the bronchial tubes are filled with a muco-purulent and frothy exudate. The lungs, when involved, show the changes peculiar to the disease present of lobar pneumonia, congestion of the lung capillaries, which causes the lung to look redder, and it is larger than usual. On section, blood serum and froth exude. The whole organ resembles a spleen; it is not as spongy and elastic as usual, but it still floats in water if the disease has not advanced beyond the congestive stage. When red hepatization has taken place, the spongy character of the lung is gone; it is hard and solid, resembling liver; the vesicles are filled with fibrin, albumen or lymph, which has coagulated. The lung sinks in water and is friable. If grey hepatization has occurred the lung contains cavities of pus; upon pressure pus exudes at different points; it is paler and sinks in water.

Often the pleura is involved; it is thickened and injected, and lymph or pus adheres to it. The lung in lobular pneumonia if cut into shows the lobules as ill-defined reddish-grey nodules; bloody fluid can be squeezed out, and the surface of the lung is smooth instead of granular.

In the intestines the changes are swelling of the mucous membrane, which is more or less ecchymotic. Often there are necrotic patches present. The submucosa is infiltrated with liquid, giving rise to œdema. Often there is ulceration present, especially in the neighborhood of the ilio-cæcal valve. Peyer's patches are involved, contents of bowels bloody.

The brain is œdematous and the vessels of brain engorged; lymphatics hyperæmic. The myocardium is of a greyish faded leaf color, due to the fatty change which has occurred. The liver, kidney, and other parenchymatous organs have undergone either cloudy swelling or fatty degeneration, according to the length or severity of the fever which existed. Bed sores are present upon the elbows, thighs, hips, and other prominent parts, due to constantly lying down and lowered nervous function.

Treatment.—Prophylaxis: Distemper is a disease that cannot be prevented; it attacks subjects under all conditions, but the spreading of it may be stopped to a certain extent by isolation and disinfectants. Prof. Friedberger remarks that by inoculation with attenuated virus, which produces a mild attack, an animal can be rendered immune for several years. In no disease does hygienic methods and good care show such good results as in distemper of the dog. Disinfect the discharges, especially of the respiratory passages and alimentary canal; sprinkle surroundings and bedding with crude carbolic acid, 5 per cent., or creolin solution (gm. 32.00 to water, 1 litre). There is no medicament that will abort an attack or which is a specific. We must treat the conditions that exist. In a mild attack good food, milk, raw eggs, chopped lean beef, clean cold water. Disinfect the alimentary canal as nearly as possible by administering hydrargyri chloride mitis, 0.006, every two hours, until free passage of bowels takes place; quinia, 0.200, every four hours. These remedies act together as antiseptics and antipyretics, whilst calomel is also a laxative and quinia a tonic. If there is pain give pulvis ipecacuanha et opii 0.200, or camphora monobromata, 0.065.

Either will relieve the pain and act as a sedative, as well as to help to keep up the strength. If the animal is extremely languid strychnia, 0.001, hypodermically. Dust skin lesions with

℞ Zinci oxide,
Pulv. rad. indis floris. āā 2.00
Pulv. amyli, 64.00
Sig. Dusting powder.

To loosen secretions inhalations of steam from hot water, to which has been added thymol or eucalyptus oil. Allow no diffusible stimulants; clothe warm; plenty of fresh air, taking care to avoid exposure.

If intestinal parasites are present remove them by giving

Tæniafuge. ℞ Kamala,
Orleoresin aspidium, āā 1.00

Fast for twenty-four hours before giving the tæniafuge and follow in six hours with ol. olivæ, 32.00.

Ascarides. ℞ Santoninum, 0.133
Res. podophyllin, 065
M. Sig. One morning and night for three days.
Oxyuris. Enemas of solution of quassia or vinegar.

Patient will generally eat nothing, but must be fed beef tea, eggs, wine, or small and frequently repeated doses of brandy. Hydrargyri chloride mitis or oil every third hour; quinin, 0.33 every three hours. If intense pain is present, morphia, 0.011, every four hours hypodermically, or chlorodyne, 0.333, every three hours per orem. If temperature rises above 105° F., cold sponging at intervals of two or three hours until down to at least 104 degrees. If the temperature cannot be controlled by above method give acidum salicylicum, 0.200, or salol in same doses as a last resort. In case above does not have the desired effect, phenacetin or acetanilid, 0.133, every two hours until temperature is lowered, but do not use depressants unless absolutely necessary. Fever is a necessary accompaniment of infectious diseases; the increased tissue metabolism may be looked upon as an effort on the part of nature to destroy and get rid of the cause of disease; pyrexia, as a protective mechanism, and dragging down the temperature, is often detrimental to the patient. Fever should not be interfered with unless it goes on to such an extent as to burn up, as it were, the tissues and threaten the vitality of the animal. Restlessness may be controlled by sulphonal, 0.333, given in warm milk. Anoint the forehead and bridge of the nose with fat. Antiseptic inhalations or even sprays should be used to increase the secretions. Clothe body and head. Laryngitis, if present, counter-irritants, potassium chlorate. If cough troublesome due to bronchial irritation, give

℞	Codeia sulphatis,	0.226
	Ammon. mur.,	20.000
	Syr. prun. virgin.,	64.000
	Spts. junip. comp.,	128.00
M.	4.00, t. i. d.	

If secretions free, ol. eucalyptus, 0.200, in capsules, every four hours. When diarrhœa is persistent sulpho-carbolate of zinc, 0.123, every two hours, or, what is perhaps the best, tannopine, 0.333; hot cloths to abdomen relieve pain; strychnia, 0.0013, to keep up heart; chloral, 0.666, to relieve excitement and produce sleep. If animal is strong and the attack comes on with convulsions or rabiform symptoms, chloroform inhalations followed by bromidi potassi, 0.666, every two hours, or chloral hydrate, 0.666, every four hours, as indicated. Constipation should be treated by enemas of warm soapsuds, to which a little glycerine or of tympanitic turpentine has been added. In the severe form of distemper the general management is much the same as in the mild or medium. More stimulants are indicated; quinine, 0.333 doses every three hours, reduce the temperature. At the same time it also sustains the vital forces, controls nervous symptoms, and lessens the tendency to inflammation.

Nothing that tends to depress is to be countenanced. If cardiac collapse threatens, strychnia, 0.0013, or digitalis fluid extract, 0.133. Diffusible stimulants, spiritus ammonii aromaticus, 2.00, alcohol, 2.00 to 4.00, must be frequently administered. When gastric symptoms predominate, as nausea or vomiting, administer first an emetic of either zinci sulphatis or cupri sulphatis, in 0.333 doses, in water, or apomorphine, 0.008, hypodermically; but this last is too depressing for ordinary cases. I have been in the habit of giving the zinc or copper in capsules, followed by the water. After the animal has vomited give

℞ Ac. hydrochloricum dil.,
Pepsinum, āā 4.00
Aquae dist., 64.00
Sig. 4.00, well diluted, t. i. d.

If acid is not indicated give

℞ Carbo ligni,
Pepsinum,
Bismuth subnitrat., āā 2.00
M. ft. capsulæ No. xv.
Sig. t. i. d.

When vomiting persists, atropine, 0.0005. Among other remedies to check vomiting I might mention opii pulveris, 0.133, ac. carbolic, 0.016, cocaine, 0.006, ingluvin, 0.666, ac. hydrocyanic dil., 0.066.

Convalescence.—The management of this period requires great care and judgment. More cases are lost through carelessness at this time than from the actual disease itself. At this time we must guard against complications; be careful of exposure. Usually after a severe attack the temperature is below normal for several days, and so long as this condition exists the dog is liable to chills and a relapse. Allow a liberal diet of easily digestible foods, and in those cases where there has been intestinal hæmorrhage confine it to a liquid diet for several days. Build up the system with tonics.

℞	Ac. mur. dil.,	10.00
	Pepsinum, puri,	8.00
	Tr. nucis vomicæ,	6.00
	Glycerinæ,	48.00
	Aqua dist.,	64.00

M. Sig. 4.00, well diluted, before each meal.

or

℞	Quinia sulphatis,	32.00
	Quassia pulveris,	32.00
	Ext. gentianæ,	96.00

M. ft. massa.

Sig. 1.333 t. i. d.

If animal is anæmic, Bland's pills, t. i. d.

In speaking briefly of complications, pleuritis or pneumonia, apply external applications to thorax, in form of sinapis or linimentum saponis, and put on a binder of some thick warm material. Expectorants, stimulants, iodides. Hydrothorax, perform paracentesis thoracis.

For chronic bronchitis use

℞	Balsam copaiba,	5.00
	Ammon. muriat.,	6.00
	Extr. glycyrrh. pulv.,	4.00
	Mist. ammonii, q.s.	96.0

M. Sig. 8.0 every four hours.

Potassii iodid., squills, senega, turpentine, etc., or

℞	Heroin,	0.066
	Guiacol carbonate,	0.06

M. ft. capsulæ No. xii.
Sig. t. i. d.

Bed sores, bathe with alcohol.

For persistent diarrhœa give

℞	Pulv. ipecac. et opii,	2.00
	Bismuth subcarbon.,	8.00
	Salol,	2.00

M. Chart No. xii. Sig. Every two hours.

For chronic dyspepsia frequently wash out stomach. Give argentum nitras, 0.016, t. i. d., with bicarbonate potash solution (5 per cent.).

For chorea give

℞ Liq. arsenalis, 2.00
Syr. simplices. 98.6
Sig. 4.00 t. i. d.

For paralysis, strychnia in progressive doses. Electricity.

For goitre, unguentum iodi co.; internally, potassi iodidum.

For opacities or leucoma, Europhen, tannate of glycerine, or dust with calomel.

℞ Hydrargyri flavum oxidum, 0.066
Vaseline 4.00, or protogol 5 per cent. sol.
M. Unguentum.
Sig. Apply daily.

MY EXPERIENCE WITH MEDIAN NEURECTOMY.

By J. Payne Lowe, D. V. S., Passaic, N. J.

A Paper read before the Veterinary Medical Association of New Jersey, at Newark, May 10, 1900.

In bringing before you the subject of median neurectomy it is my intention mainly to give you my experience with the operation; to be modest, to cite a number of cases which I have operated upon during the past year or two, giving you accurately and impartially the pathological conditions for which the operation was performed in each case, the immediate result, and the subsequent history to date. In doing this I hope to be able to show that median neurectomy is an operation that is practicable and safe, and that the practitioner should perform it without hesitancy wherever it is indicated.

Familiarize or rather refresh your mind with the surgical anatomy of the region, which you can get from any of the standard authorities on veterinary anatomy. The anatomical essentials, however, can probably be more readily obtained by referring directly to that most excellent treatise on this operation by Prof. C. Pellerin and translated into English by our own Liautard.

Where the operating table cannot be used the animal is cast with the hobbles on the side which is to be operated upon; the upper fore limb is taken from the hobble and by means of a side line secured to the corresponding hind one. The lower fore limb (the one to be operated upon) is also taken from its hobble and the bar hobble applied to it and shin of the hind limb. The limb is also held firmly in extension by an assistant with a strap or rope. Having thus well secured your animal, and having sponges, antiseptic solutions, etc., and the necessary instruments ready, which are: two bistouries, one convex and one straight, a grooved directory, curved scissors, bull-dog forceps, plain dissecting forceps, a couple of blunt retractors, and a blunt tenaculum, you are prepared to proceed.

The operation is performed upon the inner side and upper portion of the fore arm. The point for the incision is immediately under the round eminence formed superiorly by the humero-radial articulation, and inferiorly by the bicipital tuberosity and the rough impressions back of it. Placing the finger just inferior to the above eminence, feel for the posterior border of the radius, and make your incision just a little posterior to that border, say a quarter of an inch. By observing this point you will generally be right over the nerve and posterior to the vein. At this point make your incision through the skin, about one and a half inches long, then cut through and parallel with the fibres of the sterno-aponeuroticus muscle; then go through the cellular tissue, when you will come down upon the antibrachial aponeurosis, which is attached to the posterior border of the radius, and is dense and inelastic. Now carefully take hold of this aponeurosis with your bull-dog forceps, raising it slightly, and carefully puncture it sufficiently to allow the introduction of the grooved directory, using this as a guard against injuring the vein. By cutting from within outwards, divide this aponeurosis to the extent of your outer incision. Have an assistant hold the edges of the wound apart with a pair of blunt retractors. We now see the internal flexor of the metacarpus. In front of this muscle we should see the nerve, which is recognized by its whitish color, flattened form and sensitiveness. You now also see the large vein in front of the nerve, which is recognized by its dark color. At this location the vein usually lies in front of the nerve; the artery is generally concealed by the vein and nerve, but a careful study of the anatomy and experience will show that these relations are not always constant, so if you do not see the nerve, have patience and look further.

Having found and isolated the nerve, pass a blunt tenaculum under it and raise it slightly, dividing it on a level with the superior part of your incision. Take hold of the distal end and resect an inch of the nerve and remove it. Wash the wound out antiseptically, and the operation is completed.

If the operation has been neatly performed, the wound will be healed in about two weeks. If the season permits, irrigate the limb daily with cold water, and follow out the general principles of antisepsis.

Case No. I.—The subject was an aged mare, weighing about 1000 lbs., suffering with chronic periostosis of the fetlock. The lameness was very marked. I operated on her April 1, 1899. Immediately after the operation an apparent improvement was noticed, which was probably due to shock and being confined in the hobbles. On the second day was very stiff and sore in walking, which was due to the soreness and swelling in the operated region. This animal was given six weeks rest, but the results were negative—no improvement whatever, as the exostosis affected the mobility of the joint. It can be stated that the lameness was mechanical, and therefore could not be overcome.

Case No. II.—Small mare, used for road purposes. Had been lame in the foot for a period of three months, during which time she rested and received a liberal amount of palliative treatment, and had three blisters applied, without any or very little improvement. Cocaine injected over the internal plantar nerve on several occasions caused the mare to go temporarily sound. My diagnosis was navicular disease in its incipiency. I operated on her on April 10, 1899. In two weeks the wound was healed and in three weeks the mare was driven and went sound, and continues to go sound at this writing. Previous to her lameness this mare had good knee action, and it is interesting to know that after the operation she had all her former action, but she always pointed the foot, as she did before the operation. I am of the opinion that the operation diminished the pain sufficiently to remove the lameness, but as sensation was still partial in the foot, and in view of the nature of the lesions, she still pointed. I have been looking for this mare to go lame, but she does not.

Case No. III.—Mare, twelve years old, weighing about 1300 lbs.; had been lame for about a year; was too lame to be of any service, even for slow work; and inspection and manipulation of the limb revealed the following: Marked induration of the flexor tendons and contraction of the same, with consequent knuckling; an exostosis was detected on the inside of the coronet; the heel of the foot was high, and in standing the toe alone was placed on the ground; the heel did not quite touch the ground in walking. I looked upon the exostosis as the primary cause of the lameness and the thickening and contraction of the tendon and the high heel as the result. On April 15, 1899, I operated upon this mare, and immediately after the operation she stood down square and put weight on the limb in standing; in fact, she had a tendency to rest the other limb. This mare had a month's rest, and since has been serviceably and practically free from lameness. Of course, considering the lesions that existed, we could not and did not get that freedom of movement as in a normal limb.

Case No. IV.—Mule, chronic tendonitis; very lame even in walking, limb flexed in standing and did not get the heel down right in walking; subjected to the operation on May 14, 1899. The usual rest was given; the immediate effect was not so pronounced, but after a month the mule was put to work, going nearly all right, and gradually improved, and now, almost a year afterward, is going serviceably sound, and is again a useful working animal.

Case No. V.—Heavy draft horse, 14 years, and weighing about 1600 lbs. A tendonitis developed which resisted the usual forms of treatment. Rest was given and two blisters applied, but the trouble progressed, contraction and thickening of the tendons becoming well marked, with knuckling. The animal was now very lame and three months had elapsed. On September 26, 1899, median neurectomy was resorted to, and at once relief was afforded. The animal rested about six weeks and was put to work doing heavy hauling, and to-day is going all right. The lesions are still apparent to the eye, but an apparently doomed horse was restored to usefulness.

Case No. VI.—Aged grey mare, very lame in walking; periostosis of the fetlock was present. She also had side bones on both fore feet and on one hind foot. I did not connect the lameness with the side bones, but attributed it to the periostosis of the fetlock. I operated on January 15, 1900. Immediately after the operation there was a marked improvement, but still slightly lame; was rested for four weeks and seemed to be doing well; was put to work at heavy pulling and the lameness returned with all its severity. This was a negative result. At this time the animal was disposed of and passed out of my observation.

Case No. VII.—Mule, lame for a year or more, lameness gradually becoming aggravated. On February 12, 1900, at the time of the operation, was very lame and not much weight put on the limb when standing. Immediately after the operation a marked improvement was noted in walking and trotting, though the action of the lower part of the limb was limited. The last time I saw this animal he was going well and working every day.

I have operated on several other cases quite recently, but at this time will not report on them, as I have not had an opportunity of seeing the results. You will, therefore, see that in two cases of chronic periostosis of fetlock the result in both cases was negative, but anchylosis was present, hence a mechanical lameness remained.

One case of navicular disease, result successful. I do not wish it to be interpreted that I prefer this operation for navicular arthritis, but the case was experimental, and I give the results.

Four cases of chronic tendonitis, all successful. Some advocates of the operation claim that it is indicated in any of the chronic conditions from the knee down, exostosis on the knee, cannon, fetlock and foot, providing no anchylosis is present, and the lesions are on the inner side of the limb. About many of these I cannot express an opinion, as I have not operated upon this class of case. But there is a class of chronic cases often seen in heavy horses (chronic tendonitis) in which condition the animal is practically useless, where firing and blistering is often ineffective, and I do believe that in this class of cases if you perform median neurectomy you will be rewarded by very gratifying results.

In concluding I would say that you must use good judgment in the selection of your cases. Do not select cases where it is not indicated and then condemn the operation because the results are negative. And, again, on the other hand, do not operate on cases where it is unnecessary, where other forms of treatment would give relief.

REPORTS OF CASES.

> "*Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.*"

DID TUBERCULIN MISLEAD IN THIS CASE?

By A. W. Baker, V. S., Brasher Falls, N. Y.

In regard to the article on "Foreign Bodies," by Dr. Francis Abele, I report the following interesting case that have occurred in my practice :

Last spring I was called to see a cow that had a chronic cough for about two years, and had been tested with tuberculin in the meantime and pronounced tuberculous. The owner refused to destroy her, and after a while he noticed a small enlargement above and posterior to the elbow ; it grew very fast.

I was called in and upon examination found the enlargement about the size of a quart measure and fluctuating. I decided to operate and cast the cow and upon making an incision removed 30 ounces of putrid pus. When probing the cavity I felt something very hard between two ribs, which when removed proved to be the metallic part of a shoemaker's awl. Do you think that this passed through the lungs and caused the cough? I have since tested the animal and received no indication of a reaction.

WHAT HAPPENED TO A LITTLE KITTEN, AND HOW HIS LIFE WAS SAVED.

By E. M. BECKLEY, D.V.S., Meriden, Conn.

May 12th a Mr. Haager brought to me a seven weeks old kitten, saying something ailed it, and when he rubbed its throat it would scratch and bite. I felt its throat, and about half way between throat and chest a pointed object could be detected. I so informed him, and that it would be necessary to open the œsophagus and take it out. After a time he gave consent but thought I would kill the kitten. I clipped the hair close and made an incision over the object, and took out this hat pin, which I send you. It swallowed it head first, and had been in the kitten's stomach and intestines a number of hours before it came to me. The kitten has made a complete recovery and is ready to swallow anything that comes his way. The kitten was seven weeks old the day I took out the pin. It measured from its head to its rump 9½ inches. The hat pin measured 5⅞ inches. Put the pin with your collection of specimens.

DEPARTMENT OF SURGERY.

BY L. A. AND E. MERILLAT,
of the McKillip Veterinary College, Chicago, Ill.

INTESTINAL SUTURES (CONTINUED FROM PAGE 218).

(2) *Lembert's Suture* (Fig. 8).—This is a method of suturing that is by far more reliable than the one described in No. 3, Vol. XXIV., of the REVIEW, although not so easily applied. It consists of a number of interrupted stitches which never come in contact with the contents of the alimentary canal, and in this way lessens the danger of infection from within. The stitches are passed through the serous and muscular coats and

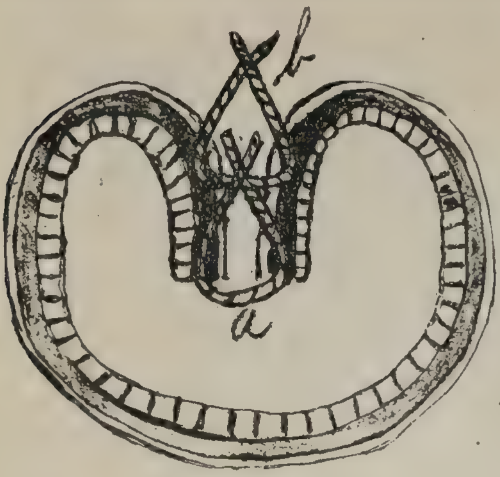


Fig. 4.

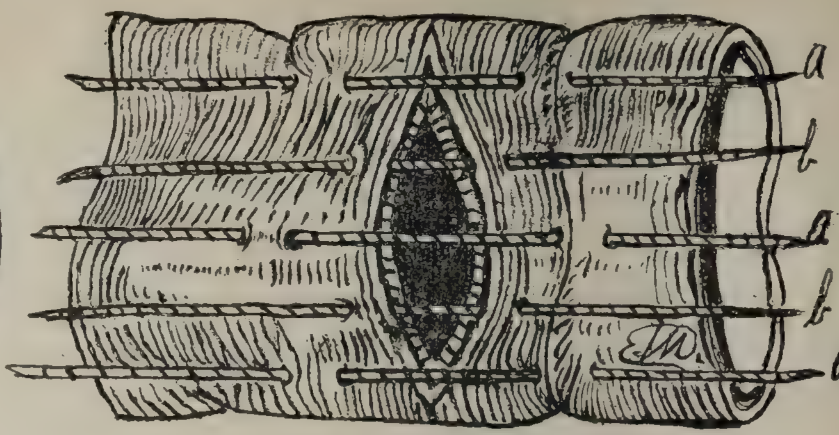


FIG. 5.

CZERNY-LEMBERT SUTURES.

Fig. 4. Lateral view. *a*—Czerny's suture ; *b*—Lembert's suture.

Fig. 5. *a*—Lembert's suture ; *b*—Czerny's suture.

out again, never penetrating the mucous coat. We shall consider the application of this method in the following operations, viz.:

(*a*) Intestinal approximations. (*b*) End-to-end anastomoses. (*c*) Enterorraphy.

(*a*) *Intestinal approximations* (Fig. 8).—In this procedure, the ends of the intestine to be approximated are brought together and the required number of stitches applied ; the distance between the stitches being left to the judgment of the operator. The stitches should be made of catgut, which is readily absorbed, leaving no foreign substance in the cicatrix formed by the union of the two ends. The stitches (Fig. 8) are made with a needle armed with catgut and passed through the serous coat into the muscular and along the longitudinal axis of the intestine for a distance of from five to eight millimeters and through the serous coat from within out ; the needle is then passed through the serous and into the muscular coat of the other end to be approximated, in the same manner as before ; making the point of entrance at the same distance from the edge of this end as the point of exit is from the edge of the other end ; this then constitutes one of the ligatures ("stitches") which make up the Lembert suture. This should be repeated until the required number of stitches have been applied. They should then be ligated carefully, one by one, with special care taken to apply uniform tension to them. By ligating them the serous coats of the two ends are brought together and the free edges are turned into the lumen of the intestine. The serous coats readily unite, leaving but a very small cicatrix, but the internal surface does not have the same synulotic environment; the muscular coats are not held together so firmly as the serous; the mucous coats are not kept in apposition; the wound is exposed to infection from within; foreign substances prevent cicatrization; fæcal matter accumulates at the point of intersection; and, a number of other conditions which have a tendency to make an unfavorable seat for immediate union, could be mentioned in this connection.

The advantages of this method can be summed up as follows: 1. The stitches are not subject to infection from within. 2. They can be applied rapidly, almost as quickly as the most simple method.

Indications:—This method may be used when the operator desires to shorten the procedure, or when the patient's condition is such that it could not endure a long operation.

(*b*) *End-to-end anastomosis.*—In this form of anastomosis the success of the operation will depend greatly upon the ingenuity of the operator. If the ends to be united are of the same dimensions the operation is as simple as that of approximation; but if one end is larger than the other, the larger one should be reduced to the calibre of the smaller by a longitudinal suture, which can de made by the Lembert method. The application of Lembert's sutures in this operation is the same as in approximation, and the results are the same.

(*c*) *Enterorraphy.*—This is an operation (Fig. 5) which is frequently indicated in veterinary practice, and will be fully described elsewhere. The object of enterotomy is usually to remove some obstruction from the intestinal tract, and should be done carefully, the wound should be well irrigated and made aseptic, and the incision properly stitched. The technique is the same as in other operations, and the stitches are made across the wound (Fig. 5 *a*), and in ligating them the edges are turned into the intestine, as in Fig. 4.

3. *Czerny's Suture.*—This is a very ingenious method of suturing intestinal wounds, and consists of a series of interrupted stitches (Fig. 5 *b*) which are made as follows: a needle armed with catgut is passed through the serous coat into the muscular and out of the edge of the wound between the muscular and mucous coats of one end (Fig. 4 *a*); the needle is then passed into the edge of the other end between the muscular and mucous coats, then through the serous coat at the same distance from this edge of the wound as the point of entrance is from the other edge. This constitutes one of the stitches; which,

when the required number is applied and ligated, completes the Czerny suture. This method holds the serous and muscular coats together and brings the mucous coat in apposition, which is supposed to cover the stitches and prevent them from becoming infected from within; this, however, is not always the case; occasionally the folds are not complete and stitch suppuration follows. It is generally conceded that it is a little more reliable than the Jobert suture, but experienced operators who have tried the Czerny suture and compared its results with those of other sutures do not adopt the method when more reliable ones can be used instead.

With the Lembert suture, it makes the most reliable intestinal suture (Fig. 5), which has been improperly called the Czerny suture by some authors.

4. *Chaput's Suture.*—This method of suturing is seldom used, but is one of the most reliable in suturing intestinal approximations and end-to-end anastomosis. The procedure is long and tedious; the stitches are numerous, and if the technique is correct, the result is reliable. The method consists of three rows of stitches, viz.: (*a*) Muco-mucous; (*b*) Musculo-muscular, and (*c*) Sero-serous sutures.

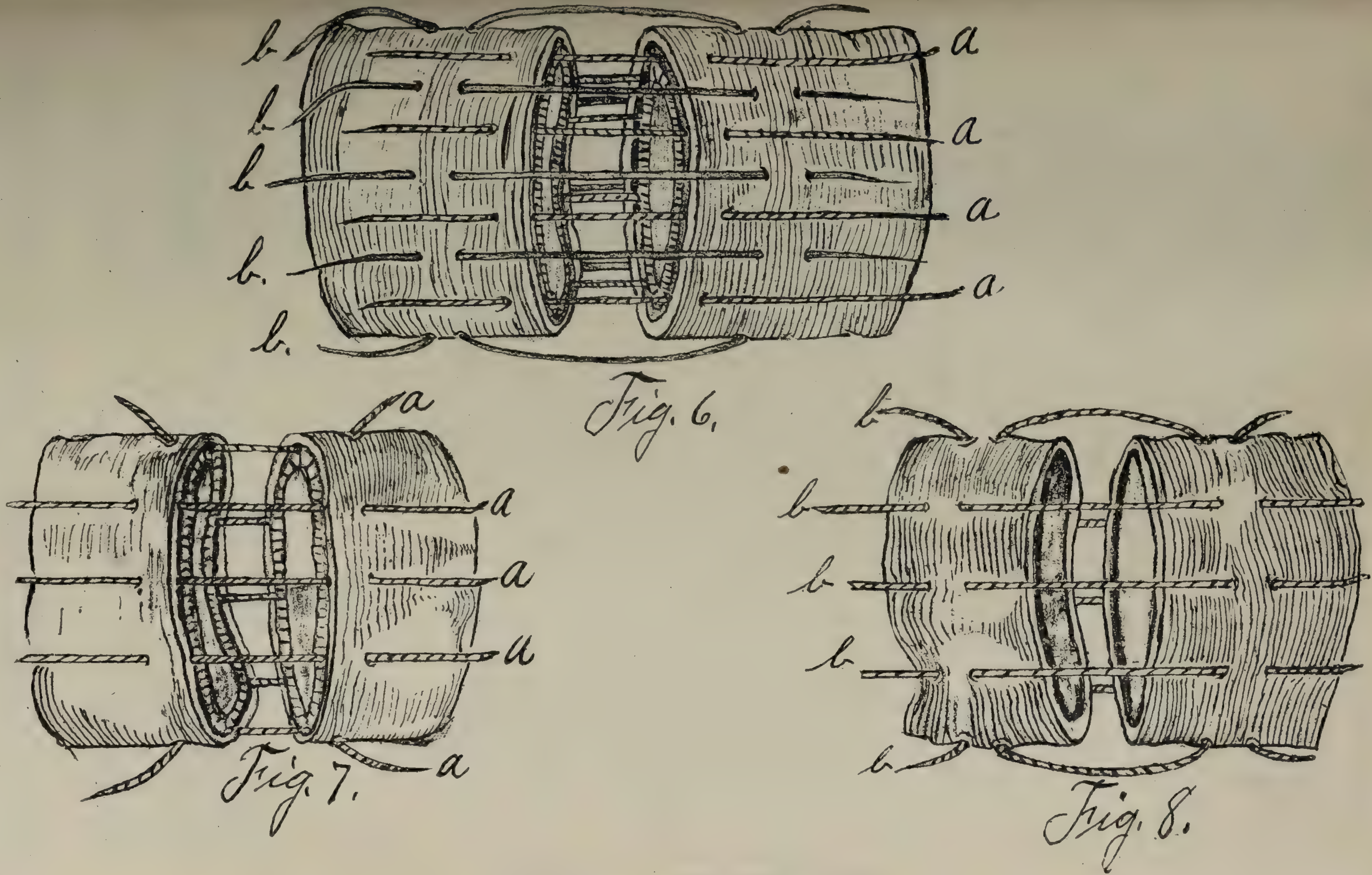
(*a*) The muco-mucous sutures are the stitches that are applied to bind the mucous coats of the ends to be approximated.

(*b*) The musculo-muscular sutures are those that are used to bind the muscular coat of each end together.

(*c*) The sero-serous suture is the suture that is applied to bring the serous coats in apposition.

The ligature used in making the muco-mucous suture may be of silk, but that used in making the other two sutures should be of catgut. The technique in approximations is as follows: divide the mucous from the muscular coat for a distance of one centimetre from the edge of the wound, and with a needle armed with silk or catgut, make the required number of stitches necessary to keep the mucous coat of each end in apposition, having as many stitches ligated in the lumen as possible. The next step is to apply the musculo-muscular suture, which should be made of catgut, and carefully ligated. The third series of stitches should be made carefully, bringing the serous coats together; which, if properly done, will unite, leaving but a small cicatrix.

5. *Czerny-Lembert Suture* (Fig. 4, 5, 6.)—This method of making intestinal sutures consists of two rows of interrupted stitches, one surrounding the other; the inner row is made up



INTESTINAL APPROXIMATION.

Fig. 6—Approximation sutured by Czerny-Lembert method ; Fig. 7—Approximation sutured by Czerny's method ; Fig. 8—Approximation sutured by Lembert's method ; *a*—Czerny's stitch ; *b*—Lembert's stitch.

of a series of Czerny's stitches which may be of silk or linen; and the series of stitches that surround it is a Lembert suture, and should be made of catgut, which is absorbed after cicatrization. This is one of the most reliable methods and should be adopted, if possible, whenever intestinal sutures are indicated; it can be used in approximations (Fig. 6), end-to-end anastomosis and enterorraphy (Fig. 5).

The technique is as follows: The stitches of the inner row are made as in the Czerny method (Fig. 4*a*, and 5*b*); they are ligated carefully and when completed, a row of Lembert's stitches surrounding it, is applied and ligated; which, when properly and carefully done, makes a neat and substantial suture. The inner row of stitches bind the mucous and muscular coats of each end or edge together firmly, and relieves the outer row of stitches of part of their strain, and makes a very favorable condition for immediate union.

Ligation of Sutures.—In tying the stitches used in abdominal and intestinal sutures, the following knots are usually selected, viz.:

(*a*) Granny knot.
(*b*) Sailor's knot.
(*c*) Friction knot.
(*d*) Surgeon's knot.
(*e*) Combined surgeon and sailor's knot.

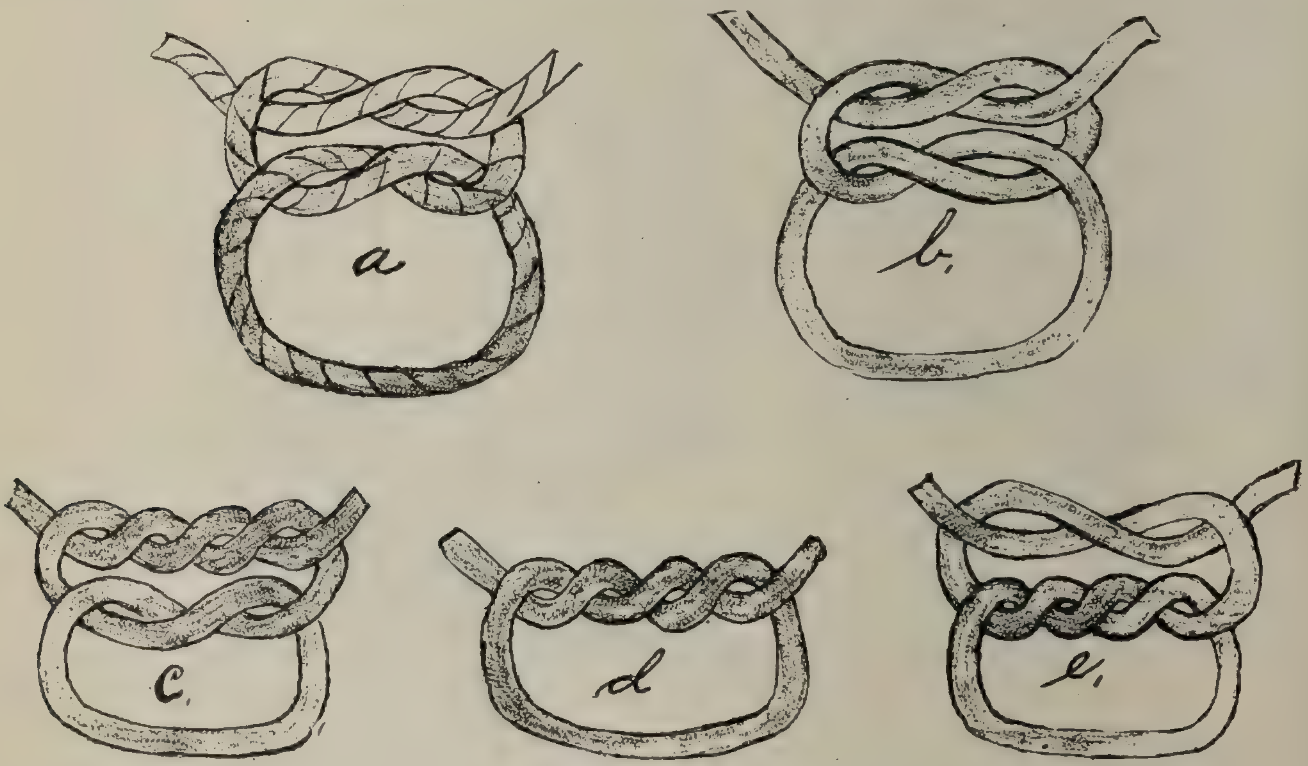


FIG. 9.
a—Granny knot; *b*—Sailor's knot; *c*—Friction knot; *d*—Surgeon's knot; *e*—Combination, consisting of a surgeon's knot with part of a sailor's knot.

(*a*) *Granny knot.*—The knot known as the granny knot is a tie consisting of two loops, one upon the other (Fig. 9 *a*). The loops do not lie in the same line and it often becomes a slip-knot; for this reason it should not be used in ligating sutures unless a third loop is applied.

(*b*) *Sailor's knot.*—The sailor's knot consists of two loops lying one upon the other in the same line (Fig. 9 *b*). The ends come out side by side through a vertical loop at each end of the knot, and when drawn up form a square knot. It is sometimes known as the "square or reef knot," and is very reliable in ligating silk, linen or cotton stitches, but not considered so for catgut sutures, and should not be used to ligate catgut stitches that are located where they cannot be watched carefully.

(*c*) *Friction knot.*—There are a number of ways of making friction knots, but the one most generally used consists of a simple loop to which is added a surgeon's knot (Fig. 9 *c*), which makes a very good knot to use in ligating catgut stitches. Another method of making a friction knot is by placing one surgeon's knot upon another. The chief objection to this is the size of the knot, which in many instances is supposed to be absorbed. When catgut sutures can be relieved by another suture, the sailor's knot is preferred, but when this cannot be done, the first mentioned knot (Fig. 9 *c*) should be used in ligating the stitches.

(*a*) *Surgeon's knot.*—The surgeon's knot is formed by passing the thread twice through the same loop (Fig. 9 *d*). This knot is used in ligating arteries, and to prevent stitches from slackening while they are being tied. In tying catgut stitches it can be applied to a single loop in order to prevent them from slackening after they have been tied.

(*e*) *Combined surgeon and sailor's knot.*—This knot consists of two loops; the first is a surgical knot and the second a sailor's knot. It is a knot that is often used instead of the sailor's knot, when the tension of the stitches is likely to slacken before the second loop can be applied, but when this danger is not obvious, the sailor's knot is preferable.

Summary. 1. The *granny knot* should not be used in tying stitches employed in making abdominal or intestinal sutures.

2. The *sailor's knot* should be used in ligating silk, cotton and linen stitches; and catgut, when one suture is relieved by another.

3. The *friction knot* (Fig. 9 *c*) is the only reliable knot for catgut stitches, and should always be used when the

principal suture is not relieved by a secondary one.

4. The *surgical knot* is used in ligating blood vessels, and to prevent stitches from slackening before the second loop is applied.

5. The *combined surgeon and sailor's knot* should be used in ligating blood vessels, and when stitches are likely to slacken before the knot is completed.

6. When the stitches are to be absorbed, the knot should be made as small as possible in order to obviate the formation of sinuses when the stitches accidentally become incorporated in the cicatrix.

7. The tension of the stitches should be uniform throughout the whole extent of the suture, and just sufficient to bring the edges of the wound together firmly without injuring the tissues through which they pass.

8. External sutures are to be removed from the wound, but the time for this depends much upon circumstances, such as the character of the wound; the condition of the stitches; the nature of the tissue involved and the age and species of the animal Sutures left in place too long may cut the tissue and cause multiple foci for infection and if taken out too soon the edges of the wound may be torn apart by restoring the natural strain of the tissues involved. If the aseptic precautions were correct and the wound unites by primary intention, the stitches may be removed with safety about the seventh or eighth day.

ABDOMINAL SURGERY.

In reviewing the field of abdominal surgery in domestic animals we must consider the method of performing and the results gained by laparotomy, herniotomy, ovariectomy, castration of cryptorchids and the radical treatment of herniæ; together with all the operations performed upon the organs contained in the abdominal cavity in which the peritoneum is incised. The most common of these are those in which organs are incised, excised, or sutured, and the name of these operations is known by a Greek suffix added to a Greek word referring to the organ or anatomical structure involved; *e.g.*, "*tomy*" added to a Greek word relating to an organ or an anatomical structure, refers to an incision or dissection; "*ectomy*," to an excision or exsection; "*rhaphy*," to suturing or stitching; and "*stomy*," to the formation of an artificial opening.

Of recent years the greatest advancement made in human surgery has been in abdominal operations, and in veterinary surgery more attention has been given to this division of surgery since than before the adoption of aseptic treatment of wounds; of increased precision in operative surgery; of a more comprehensive study of the physiological function of organs; and, of surgical anatomy of domestic animals as an indispensable adjunct to veterinary surgery. The veterinary student who receives proper instruction sees all the major operations performed at appointed clinics, and also has the course of treatment following these operations demonstrated at the daily morning clinic of the surgical ward; and, in this way, he profits by the knowledge gained from the experience of others and improves accordingly; whereas, without these advantages, a few alarming symptoms, dreaded sequelæ or unfavorable results following his first few operations would probably cause him to "drop" surgery henceforth and forever. With a knowledge of the technique of abdominal operations, aseptic and antiseptic surgery, the veterinary surgeon should not hesitate to use such surgical interference when the opportunity presents itself; even though a few genera of domestic animals are not favorable subt jects for abdominal surgery. In herbivora, such operations are seldom undertaken, excepting when the indication is the resul- of accidental injuries or wounds already mentioned in the classification of indications for abdominal surgery (Vol. XXIV., No. 3, Dep't of Surg.) The injuries included in the first classification of indications for such surgical interference in all domestic animals may be divided as follows, viz.:

I. Contusions of the abdomen.
(1) Subcutaneous rupture of abdominal walls.
(2) Solution of continuity of blood vessels.
II. Wounds of the abdomen.
1. Non-penetrating wounds.
(*a*) Simple wounds.
(*b*) Complicated wounds.
2. Penetrating wounds.
(*a*) Wounds that divide the parietal portion of peritoneum.
(*b*) Wounds with prolapse of viscera.
(*c*) Wounds complicated with visceral injury.

I. *Contusions of the Abdomen.*—Contusions are very common in domestic animals, as a result of kicks, treads, collisions and injuries caused by horn thrusts. The condition of these injuries depends very much upon the force of the blow and the nature of the object with which the blow was given. These bruises sometimes inflict subcutaneous wounds which may cause a hernia, leaving a permanent blemish if not treated properly, but in most cases these bruises are characterized by a hard, firm swelling, caused by the rupture of tissues and blood vessels in the part injured. If the large blood vessels are divided in the abdominal walls, the enlargement which follows is usually a hæmatoma, but often resembles a hernia, and at times it is difficult to make a proper diagnosis in such instances. Mistakes made in this way are very embarrassing, and it is therefore necessary that no blunder be made in the diagnosis of such cases.

1. *Subcutaneous Rupture of Abdominal Walls.*—In herbivorous animals the abdominal walls are always tense, and a forcible blow often divides one or more of the muscular or aponeurotic layers, which may permit the remaining layers and the peritoneum to pass through the rupture; this, however, is more common in the tunica abdominalis than the muscles. A forcible blow, a kick from a horse, or a horn thrust from an ox, will often divide the abdominal tunic, and at times, when the swelling has partly disappeared, a fluctuating mass remains; it is sometimes difficult to determine whether the enlargement is a hernia or an abscess. These enlargements should receive prompt attention. If a hernia, it should be reduced as soon as possible, and if an abscess, should be opened early, and all possible care taken to prevent the formation of a fistula.

2. *Solution of Continuity in Blood Vessels.*—Bruises of the abdominal walls often destroy the continuity of both small and large blood vessels; the swelling is usually located in the part injured if the injury is not severe; but if the injury is serious the swelling may extend to neighboring tissues, and be characterized by a firm, painful area, or a fluctuating mass associated with œdema, which gravitates downward to the lower part of the abdomen; but when the larger blood vessels are ruptured the enlargement that follows is usually a hæmatoma, which often has the appearance of a hernia. These hæmatomata are more obstinate than inflamatory enlargements, less liable to be absorbed, and should be treated surgically.

Treatment.—Swellings of recent origin should be treated with cold applications, followed by hot application (fomentations). The cold applications are used to diminish the quantity of blood carried to the part injured; prevent the extravasation and arrest the inflammatory process. The fomentations are to allay pain, reduce swelling and to increase absorption. Disinfectants may be used to prevent infection, and if suppuration follows the abscess should be opened as early as possible. When the inflammatory enlargement is not too extensive, it is usually reabsorbed; but occasionally, when the inflammation has subsided, a fluctuating mass remains, and it is almost impossible to determine whether this is hernia, abscess or a hæmatoma. If in such instances a positive diagnosis cannot be made by manipulation, an exploratory puncture, made with aseptic precaution, will reveal the true condition.

Abscesses and hæmatomata should be opened and treated as wounds requiring drainage (Vol. XXIII, No. 12, Surg. Dept.). Herniæ resulting from the injuries in question may be treated by either the palliative or radical method. In some instances these herniæ are cured by the cicatricial process; but when of long standing they should be treated by either of the above mentioned methods.

II. *Wounds of the Abdomen.*—Wounds in the abdomen, varying from a simple abrasion of the skin to a complete opening of the abdominal cavity, are conditions which the veterinarian may expect to encounter occasionally. These wounds, even though they may appear very insignificant, are often very troublesome, and followed by undesirable sequelæ if not treated surgically and antiseptically. The danger of intestinal protrusion; the extension of fistulæ between the muscles or fasciæ; the formation of multiple abscesses; and the subsequent appearance of peritonitis, are all conditions that are likely to follow abdominal wounds.

If an abdominal wound in a large herbivorous animal is large enough to allow part of the viscera to pass through the opening in the anatomical structures of the abdominal walls caused by the wound, the task of cleansing the prolapse without inflicting additional injury; of returning the prolapsed portion of the viscera without introducing foreign and septic material into the cavity; of retaining the part prolapsed in the cavity when returned into it until the continuity of the anatomical structures divided by the wound is restored; of adopting means of keeping the patient quiet; and of preventing him from interfering with the sutures or retarding the reparatory process in any manner, is not an easy one.

The formation of fistulæ in the abdominal walls is a common result following abdominal wounds in herbivora; due to the peculiar anatomical structure of the walls; the skin, the panniculus carnosus, the tunica abdominalis, the external and internal oblique, the rectus and transverse muscles with their respective aponeurotic portion are all separated from one another by connective tissues (areolar), which is a favorable soil for the development of pus cocci when introduced; the pus organisms burrow in these layers and form fistulæ which often divide into numerous branches gravitating downward to the lower part of the abdomen. These fistulæ often follow the puncturing of intestines (*punctio intestini*) of horses to relieve tympanites, and is *the one* sequel dreaded by all veterinarians who have ever had any experience in that "line." The existence of an abscess at the point punctured is generally followed by the formation of one or more fistulæ which are very obstinate and do not yield to treatment unless prompt and vigorous measures are adopted as soon as they begin to form. If the development of these fistulæ is not arrested as soon as possible, they eventually extend downward as far as the scrotum or mammæ; and sometimes they are followed by a number of secondary abscesses and local peritonitis which may terminate fatally in the course of several weeks. The secondary abscesses always break open in the direction of the least resistance; if located in the connective tissue between the rectus and the transversalis abdominis, peritonitis invariably follows and terminates fatally much sooner than when located between other muscles. When a fistula is located between the oblique muscles or the external oblique and the abdominal tunic the fatal or favorable termination is deferred; the course is slow and progressive; the symptoms and condition of the patient indicate septic intoxication, which is followed by septic infection; and the fatal termination is caused by some complication resulting from septicæmia. The formation of an abscess following a puncture, whether made with a trocar or accidentally, should not be neglected, but opened promptly and treated as an open wound, to prevent the formation of fistulæ.

The same conditions follow abdominal wounds located in the abdominal tunic, a structure composed of white fibrous and yellow elastic tissue (principally yellow elastic), which is expanded over the lower part of the abdomen and the lateral walls; its function is to assist the abdominal muscles in supporting the large abdominal viscera common to herbivorous animals; its conformation and composition favor it in adapting itself to the varying volume of the contents of the abdominal cavity; it is thickest posteriorly and near the linea alba, and becomes gradually thinner as it extends outward and upward over the lateral walls, and is located between the external oblique muscle and its aponeurotic portion internally, and the panniculus carnosus and the skin externally. A well developed layer of connective tissue is located between it and its surrounding structures at its thickest portion ; the thinner portion is closely united to the fascia of the external oblique muscle. These layers of connective tissue are favorable places for pus to burrow, which makes the treatment of wounds localized in this region difficult to treat and the result of the treatment unsatisfactory.

Most of the wounds in this region are caused by animals jumping fences, gates or stable doors ; forcible blows, such as horse kicks, horn thrusts and falls upon sharp or pointed objects ; together with punctures inflicted by attendants with pitchforks or other sharp and pointed implements ; and are all wounds that have been inflicted by or with objects that are likely to carry infection, and as a natural consequence require antiseptic treatment.

In carnivorous animals the abdominal tunic is not well developed ; it consists of a thin layer of fibrous tissue ; the walls are not tense ; wounds are not common ; and the treatment is generally satisfactory. Abdominal wounds in the dog are not serious if given prompt attention.

(*To be continued.*)

ALWAYS! ALWAYS! ALWAYS!

1. Always avoid the use of suspicious instruments.
2. Always sterilize your instruments by boiling them in water.
3. Always keep your instruments in an aseptic case.
4. Always keep your instruments in an antiseptic solution while operating.
5. Always consider your operating room incomplete without a sterilizer.
6. Always disinfect or sterilize instruments or dressings that have fallen upon the floor, your clothing or the external surface of the patient, before using them again.
7. Always disinfect the skin surrounding the seat of operation before making a surgical wound.
8. Always disinfect your hands and nails, remove your rings and cuffs, and pull up your sleeves before operating.
9. Always include soap and hot water with your important disinfectants.

10. Always avoid the introduction of fingers and hand into a surgical wound unnecessarily.

11. Always arrest all hæmorrhage before stitching a wound or applying a surgical dressing to it.

12. Always sterilize your sponges and dressings before applying them to a surgical wound.

13. Always ligate arteries, and large veins that are located near a venous trunk.

14. Always arrest capillary hæmorrhage by irrigating the wound with hot or cold water, or by the application of astringents.

15. Always have all the instruments required for the operation you are going to perform in a pan or tray, immersed in a strong antiseptic solution, and located within reaching distance.

16. Always improvise instruments when the required one is not at hand.

17. Always perform your operation in the *most simple possible* manner.

18. Always operate as if you "knew your business"—had an object in view, and were determined to accomplish it.

EXTRACTS FROM EXCHANGES.

BELGIAN REVIEW.

ENORMOUS VENTRAL HERNIA IN A FILLY—RADICAL RECOVERY [*By Prof. F. Hendrickx*].—After reviewing briefly the various treatments recommended in these cases, the author relates that of a five-months-old filly affected with a hernia on the right side, which extended from the external border of the ilio-spinalis to a level with the stifle, and from the circle of the false ribs to the external angle of the ilium. It measured 87 centimetres from above below, and 43 from forward backward. The hernial ring was 18 to 20 centimetres in its large diameter and its border 12 to 14 apart. The animal was cast, chloroformed and the region carefully disinfected. The skin divided exposed a few intestinal circumvolutions, which were reduced and kept within the abdomen with a cloth moist with phenic solution. A strong suture was applied on the middle of the two edges, which closed the opening only partly. Then a series of stitches (20 in number) were applied, starting from the upper commissure of the ring downwards, and perfect adaptations of the borders obtained. But as some of these had a tendency to cut through the muscular fibres, a second row of sutures, less in number, was applied, taking a greater amount of tissue on each border. The wound was thoroughly disinfected with Van Swieton solution and the skin sewed with separated sutures, after amputating a certain amount of superfluous tissue on each border. During the first five days the filly showed symptoms which caused fears of the possibility of peritonitis, but she recovered from them. On the tenth day the deep sutures were removed and the superficial wound was treated antiseptically. Twenty-eight days after the operation there remained but a small cutaneous sore which gradually diminished and the little animal was discharged.—(*Annales de Bruxelles.*)

TYMPANITIS OF THE GUTTURAL POUCHES [*By Prof. A. Dégivé*].—Referring to a similar case reported in the *Annales*, the author relates two cases which had come under his observation and treated by him recovered; after three months in the first case and five weeks in the second. From his consideration of these cases Prof. Dégivé is of the opinion that (1) pneumatose of the guttural ponches is the result of a retention, or prolonged gaseous pressure; (2) that the collected gas is most generally produced in the cavity, from an alteration in the secretion of the mucous membrane; (3) that the retention of gases may depend exclusively upon a special disposition of the pharyngeal opening in its normal state. There are three means of treatment: (1) *Incision of the pouch*, which he performs in the lower third of the swelling and following the great axis of the parotid gland. This must be kept open at least five weeks. (2) *Antiseptic injections*, which are all good,—tepid solutions being better than the cold ones. (3) *Enlarging of the pharyngeal opening*, which he considers really useful only in two conditions: when there is a marked stricture, accidental or congenital, of the guttural orifice, or where recovery has not been obtained with the two other methods.—(*Annales de Bruxelles.*)

SINGULAR ACCIDENT OF SPAYING IN A COW [*By N. Bald*].—In the operation of castration in cows, Prof. Dégivé has introduced for some time back a modification which consists in the application of an elastic ligature on the support of the ovary, which is secured against untying by a small glass pearl. The author had two animals to operate on. In one, with the exception of one ovary being torn away before the elastic ring had been applied, while these had to be put on afterwards to prevent bleeding, everything went well and the results were satisfactory. In the other there was no trouble and the animal recovered in a few days and remained in that condition for about two weeks, when she began to be excited and exhibited symptoms of nymphomania. She rapidly grew worse, became dangerous and was going to be destroyed when she got severely injured and was ultimately sent to the abattoir. At the autopsy the left side was found in good condition ; elastic ring and pearl well in place and, so to speak, encysted in a fibrous mass containing the atrophied ovary. But on the left the ovary, elastic ring and pearl were there also, but the ovary was greatly congested and engorged, and about twice its normal size ; the ring was, it is true, around the utero-ovarian ligament, but loose, and the pearl was broken in some twenty little pieces, floating in pus.—(*Annales de Bruxelles.*)

SPONTANEOUS RUPTURE OF THE PERFORATUS TENDON IN A HORSE [*By Prof. T. Hendrickx*].—The author calls this rupture spontaneous as being a solution of continuity of a tendon occurring without well marked traumatic cause. It is the history of a large draught horse which was placed under his care suffering with pneumo-enteritis. Although he recovered from this, he had a peculiar gait. Sent back to work, he was, after ten days, brought back to the Hospital of the Veterinary School of Cureghem, suffering with purpura. Failing to get good results from the serum treatment, Prof. Hendrickx resorted to the use of argentum colloidate, so much recommended by German authors. After an injection the improvement was well manifest, but then appeared the last complication. The animal stood peculiarly on his right hind leg, the fetlock had dropped, the hock was extended and the os calcis much lower on the right than on the left side. Made to move, the manifestations were becoming more assured, the animal rested with the fetlock on the ground and the os calcis dropped still farther down. The animal was destroyed. On dissecting the right hind leg, it was found that the perforatus was completely ruptured a little above the fetlock, on a point corresponding to the spot where it forms a ring for the passage of the perforans. The ends of the tendon were irregular, with disassociated fibres and hæmorrhagic points. Similar lesions existed on the left leg also, but to a lesser extent. The texture of the tendon was quite firm, with hæmorrhagic spots and even a beginning of rupture. Had the animal lived, the same symptoms would have also been observed as they had been on the right leg.—(*Annales de Bruxelles.*)

FRENCH REVIEW.

ESCAPE AND RESORPTION OF TWO FŒTUSES IN THE ABDOMINAL CAVITY OF A SLUT [*By M. L. Blanc*].—A hunting slut had become sick a few days after giving birth to two puppies. She was dull, quiet, without any apparent pain; her abdomen had become very large and fluctuating; she became cachectic and died. At the post-mortem, on opening the abdomen, about two litres of thick, reddish fluid, almost odorless, was found, in which floated a large number of black and greyish hairs, some single, others gathered round a hard substance and forming round or oval agagropiles of various sizes. These were situated a little everywhere between the abdominal wall and the intestines, between the intestinal circumvolutions and even between the liver and the diaphragm. Besides these little masses of hairs and bones were also found—the bones (ribs, cranial and some of the extremities) were free from soft parts. Loose nucleii of ossification of the vertebræ and finally two small fœtal heads at times were discovered in the fold of the mesentery. All these pieces were perfectly macerated; there were no soft tissues, only the hairs remained. On examining the uterus, the right horn showed two ovoid swellings between which existed a gaping laceration, with colorless borders, from which escaped a few hairs similar to those found in the abdomen. Other lesions less important and not related to the injury of the uterus were also found; but all the other organs were healthy.—(*Journ. de Zoötechnie.*)

WOUND OF THE CHEST—DEATH BY SECONDARY HÆMORRHAGE [*By E. Nard and P. Bergeon*].—A mare received a blow from an English cart, and one of the shafts entered the chest between the shoulder and the thorax on a level with the point of the shoulder. The shaft broke and remained in the wound. Abundant hæmorrhage took place, and at every movement of the animal a peculiar sucking noise was heard. Although the prospects of recovery seemed doubtful, the wound was packed with hydrophite cotton and the hæmorrhage arrested. With a great deal of difficulty, after removing the plug of cotton, the piece of shaft was extracted. It measured 27 centimetres in length. The wound was treated with a great deal of antiseptic measures and everything seemed to progress favorably, when one morning, nine days after the accident, she was found dead in her stall early in the morning. At the post-mortem lacerations of the paniculus, mastoido-humeralis, and great pectoral muscles were found; the whole leg was much infiltrated; the muscles between the leg and the chest were all filled with clots of decomposed blood, the anterior circumflex artery, the external collateral of the elbow and their veins had been lacerated with the shaft, and finally the subscapular artery and that of the great dorsal with their veins had also been lacerated. All those blood vessels had been plugged at the time of the accident; they had been temporarily closed by a clot of blood, but by degrees this clot had become resorbed or loose, and the fatal hæmorrhage had returned.—(*Journ. de Zoötechnie.*)

LACERATION OF THE UTERUS—RECOVERY [*By G. Petit*].—Although not due to deliver for two weeks to come, a Normandy cow is taken with violent colic, accompanied by expulsive efforts. Vaginal examination revealed a posterior presentation in lumbo-sacral position, and also a deep laceration of the uterus, some 10 centimetres long, situated on a level with the right hock of the fœtus. The intestinal circumvolutions were readily felt through the laceration. The tendo-Achilles of the right hock was divided and the tibia being extended upon the femur, the removal of the fœtus was easily completed. The uterine cavity was made aseptic by plugs of iodoformed cotton and a drench of tincture of caramija and coffee was administered to stimulate the expulsion of the placenta and tonify the animal. No other treatment was prescribed, except solution of cresyl to keep the outside clean. In 12 days the recovery was complete.—(*Revue Veterinaire.*)

THREE ATTACKS OF PARTURIENT APOPLEXY IN A COW—[*By M. Ben*].—This is the record of a cow which was successively taken in 1894, 1895, and 1897 with parturient apoplexy. In the first two instances she was treated with general bleeding, frictions of camphorated alcohol on the loins, of mustard on the abdomen and the extremities, with injections of lysol solutions in the uterus and rectal injections of sulphate of soda. At the third attack the author resorted to the treatment of Hartinstein, cold applications on the loins and on the head, bleeding at the tail, lysol injections in the uterus, sodæ sulphate enemas, mustard frictions on the extremities and on the abdomen. After a few days she was convalescent, and exhibited symptoms of pneumonia, from which she recovered after some time. She became pregnant a fourth time, and fearing another attack which might not be as successful as the preceding, the owner sold her for the butchery.—(*Revue Veterinaire.*)

AN INTERESTING CASE OF RENAL ABSCESS IN THE HORSE —[*By L. Colin*].—This was a very lean animal, which for a few days refused his food and passed frequently a muddy, whitish urine. He was very dull and often stood with his four legs brought close together, his back arched. Urine was expelled with difficulty. The animal died after a short time. At the autopsy the right kidney was found healthy and weighing 700 grammes. The left was very large, weighed 1400 grammes and bosselated on its posterior extremity. It was continued by a large pouch extending as far as the entrance of the pelvis. Situated under the transverse processes to the lumbar vertebræ, this pouch was 14 centimetres long and 10 high. It contained 3 litres of clear, white yellowish fluid without fœtid odor. The substance of the kidney was in direct communication with the pouch by an opening as large as the small finger. Its cortical portion was hollowed with cavities filled with *sui generis* pus.—(*Rec. de Med. Vet.*)

NECROSIS OF THE TURBINATED BONES OF A HORSE—SURGICAL TREATMENT—REMOVAL OF THE DISEASED BONES AND PUNCHING OUT OF A MOLAR [*By M. Breton*].—A nine-year-old horse was brought to the clinic of Alfort, suffering with nasal polypus. When examined, roaring was heard in both steps of respiration; there was discharge from both nostrils of a muco-purulent nature, and in the right this discharge was fœtid and bloody. On this side of the face there was a hard, painless swelling, evidently filling the superior maxillary bone below the turbinated. The left side was normal. The mucous membrane on the right nasal cavity was red and inflamed. The superior turbinated was swollen, its surface rough and covered with hard deposits of various sizes, some of the bony pieces sloughing out. The breath was very fœtid and characteristic of dental caries, the third upper molar was partly broken off and hollowed, with a wide cavity filled with putrefied food—maxillary glands were swollen. The diagnosis of necrosis of the turbinated by dental caries was evident. Surgical interference was indicated. After chloralization it consisted in: slitting open the nostril by excision of the false nostril, removal of a portion of the diseased bone; at this moment it was necessary to perform tracheotomy; then the upper bony wall of the nasal cavity was opened and the remainder of the turbinated removed. As the animal had lost an enormous quantity of blood, and the hæmorrhage was still going on, hemostatic measures were applied and further interference postponed. A week after the lower turbinated was removed and the diseased tooth removed by punching it out. The after cares consisted in antiseptic measures as thorough as possible, and after a complication of collection of pus in the left sinus, which received the ordinary treatment, the horse was discharged cured.—(*Rec. de Med. Vet.*)

AMERICAN SUNDRIES FROM FRENCH REPORTS.

Shrewdness of a Parisian.—An American who lived in Paris for some ten years reports a remembrance of his stay in the great city. Every time he passed one of the bridges that crossed the Seine, a dog covered with mud would come and roll himself on his shining boots. At the other extremity of the bridge was a boot black (perhaps a negro) who on seeing him offered his services. The first time the gentleman did not pay attention and got a shine. But the next day and the one after the same thing occurred—same muddy dog, same soiled shoes, same offer from the boot black. Watching the dog, he soon observed that the dog was thoroughly broken to this work, and only rubbed himself on polished shoes ; those of poor people he respected. The dog could not be bought, notwithstanding very generous offers made to his owner.—(*L'Eleveur-Semaine Vet.*)

A Musical Cow.—*The Petit Courrier* records this from New York. On a farm strange, devilish noises were heard at night coming from a stable, where a horse, a dog, and a cow were enclosed. However, these noises were neither the neighing of a horse, the barking of a dog, nor the bellowing of a cow. What was it? Everybody was frightened. One day, the village butcher bought the cow, killed it and found the cause of the trouble. The cow had swallowed an harmonica. How, no one knew, but when at night she ruminated the air entering the stomach made the notes of the instrument resound. The noises were heard only at night, because the cow was out all day and only kept in after dark. There was a fortune in her, and the owner did not know it.—(*Semaine Vet.*)

Speaking Monkey—Again from America, the *Eleveur* says : A certain Hopkins (not the veterinarian) has succeeded in making his monkey Raisy pronounce a respectable quantity of words which he says at the proper moment, and perhaps also when he ought not. Besides this, the intellectual monkey eats as a man from morning to the time of going to bed.—(*Semaine Vet.*)

FILLING AN ELEPHANT'S TOOTH.—The serious paper, *Journal des Debats*, reports the case as follows: "Four men took hold of Big Tom (how powerful they must have been!), threw him down, secured his legs, his trunk, and with ropes kept his mouth open. The diseased molar appeared, hollowed with a large black hole, big enough for an orange to go in. The American dentist cleaned it with a spoon, scraped it, disinfected it with an antiseptic solution, and with heavy blows of a hammer plugged the tooth with some seven or eight pounds of amalgam."—(*Semaine Vet.*)

COLLEGE COMMENCEMENTS.

NEW YORK-AMERICAN VETERINARY COLLEGE.

Although the examinations occurred in April, when the graduates received certificates, the diplomas were not awarded until June 7, when New York University held commencement exercises for all the schools connected with it. On the 6th the School of Applied Sciences, and the College of Arts and Pure Science held their exercises at University Heights. On the 7th the School of Law, the School of Medicine, the Graduate School, the School of Pedagogy, and the Veterinary College held their exercises at the Metropolitan Opera House, and this vast building, probably the largest in America, was filled to the top galleries. The following gentlemen had been recommended to the Council of the University for graduation: Charles Edward Clifford Atkins, Bridgeport, Conn.; Joseph L. Drexler, Thibodaux, La.; Adolph Eichhorn, New York City; J. William Fink, New York City; John Joseph Hayes, Jr., New York City; William Henry Hayes, New York City; Daniel Joseph Morgan, New York City; Rudolph Frederick Meiners, Rutherford, N. J.; James Edward Norton, Jr., Glen Cove, L. I.; James Henry Prophett, Suffield, Conn.; William Arthur Young, Utica, N. Y.

The faculty prize of a gold medal for the best general examination was awarded Dr. Drexler; the Alumni prize for the next best to Dr. Young, and the silver medal for the best junior examination to Mr. O. Barnett, of Newark, N. J.

At the close of the exercises a large number of the alumni and friends of the school repaired to the Hotel Marlborough, a few blocks below, where a delightful banquet had been prepared, and where an enjoyable evening was spent. Addresses were made by Chancellor MacCracken, Dr. Munn, Professors Coates, Bell, Stein, Lellman, Drs. Hoskins, Lowe, Ellis, Hanson, and others.

NEW YORK STATE VETERINARY COLLEGE.

At the annual commencement of Cornell University, Ithaca, N. Y., the following received the degree of Doctor of Veterinary Medicine: Clarence Lyon Barnes, Lockport, N. Y.; John W. Corrigan, V. S., Owego, N. Y.; Grant Sherman Hopkins, D. Sc., B. S., Westport, N. Y.; C. H. Jewell, Slaterville Springs, N. Y.; Louis Juliand, Greene, N. Y.; William John Mitchell, Ithaca, N. Y.; Garry T. Stone, Binghamton, N. Y.

The Horace K. White prizes of $15 and $10 to the most meritorious students in the graduating class were awarded as follows: 1st, Clarence Lyon Barnes; 2d, Garry T. Stone.

The theses of the graduates, all in part founded on original research, were: C. L. Barnes, "Laryngeal Hemiplegia; Roaring, and Old and New Methods of Treatment"; J. W. Corrigan, "Melanosis and Melanoma"; Grant S. Hopkins, "The Brachial Plexus in Monodactyle and Polydactyle"; Chas. H. Jewell, "Ovariotomy in Domestic Animals"; Louis Juliand, "Aloin as a Purgative"; William J. Mitchell, "Bacteria in the Female Generative Organs"; Garry T. Stone, "Tuberculin and its Uses in Diagnosis."

CORRESPONDENCE.

THE PROFESSION IN MICHIGAN.

RICHMOND, MICH., June 6, 1900.

Editors American Veterinary Review:

DEAR SIRS:—In several recent issues of one of our veterinary journals there have appeared editorials and other articles unjustly (I was going to say maliciously) reflecting upon the profession in this State. To set the matter right before those who have read the articles referred to, and in justice to the recognized members of the profession in Michigan, I would say that the attacks are misleading and false. There has never been a time in the history of our State association when there was more harmony and good fellowship than at present, all statements to the contrary notwithstanding. It is true there are disturbing elements here, but I wish it understood that it is all (excepting one renegade) outside of the recognized members of the profession.

I would say farther that our State Veterinarian has the confidence and esteem of all the veterinarians of the State, notwithstanding attacks made upon him in a certain locality.

Sincerely, JUDSON BLACK.

SOCIETY MEETINGS.

IOWA STATE VETERINARY MEDICAL ASSOCIATION.

Meeting called to order by President H. Shipley, of Sheldon, Ia., at Des Moines, January 10, at 10.15 A. M. The following members were in attendance: Drs. C. A. Ashworth, Asheeva; A. S. Boodie, Cedar Falls; J. I. Gibson, Denison; W. H. Austin, Newton; R. R. Hammond, Le Mars; J. E. Brown, Oskaloosa; F. H. P. Edwards, Iowa City; W. A. Heck, Maquoketa; C. J. Hinkley, Odebolt; G. A. Johnson, Sioux City; P. O. Koto, Forest City; S. K. Hazlet, Oelwein; S. H. Johnston, Carroll; J. F. Kennedy, Des Moines; P. Malcolm, New Hampton; G. E. Noble, Osage; W. B. Niles, Ames; F. J. Neiman, Marshalltown; F. M. Roys, Manning; D. H. Miller, Harlan; M. Stalker, Ames; E. E. Sayers, Algona; H. Shipley, Sheldon; R. C. Sayers, Fairfield; S. Stewart, Kansas City, Kas.; J. H. McLeod, Charles City; J. O. Simcoke, Stewart; H. E. Titus, Maxwell; H. L. Stewart, Oakley; H. E. Talbot, Des Moines; C. E. Stewart, Chariton. Visitors: Drs. D. E. Baughman, Fort Dodge; W. A. McClanahan, Redding; G. Lames, Dysart; J. J. Repp, Ames; J. J. Moore, Lamoni; Hal. C. Simpson, Denison; E. H. Shuttleworth, Nevada; J. R. Sanders, Corydon; Barton Rogers, Ames.

Minutes of the previous meeting were read and approved.

President Shipley then addressed the meeting, saying in part:

"In August, 1887, a few veterinarians met at Ames, Iowa, for the purpose of organizing a State veterinary association. In looking around the State we found that there were at that time twenty-six graduates. Sixteen of that number were present. We were nicely entertained by Professor Stalker and other members of the college faculty, and at that interesting meeting the organization of this association was completed. It was decided to hold the next meeting at Des Moines, and each member went to work to do what he could to add to the interest and promotion of the venture. We found many discouraging conditions to contend with. The quacks on every hand were ready to knife us, and the stockmen in general did not seem to realize the difference between the 'cross roads hoss doctor,' and the veterinary surgeon, and gave us but little encouragement; however, we have kept pounding away until the veterinary science has forced the quack from the middle of the road, and the stockmen have come to recognize us as their best friends. Our association has grown from year to year in membership, in interest and influence, until to-day it is second to none. Perhaps some of our older members have not been taking the interest in association work that they should during the last few years, but there have been many younger members added to our list who are well qualified to care for its interests. Veterinary legislation has been a prolific source of discussion at our meetings. In this line little has been accomplished. The opposition we have had to contend with seemed to outweigh us by just a little, and some who were appointed by this body to guard its interests may have found it more convenient to secure their own personal ends than the general and substantial interests of the association, and the dignity of the profession, and the measures proposed or suggested by this association for the benefit of the profession, became trading stock. Do not misunderstand me; I do not say that all these committees have had other measures in which they became more interested, nor that all the members of any one committee has; but I do say that with the amount of work laid out, if properly done, more should have been accomplished. Let us start the year 1900 with renewed energy. Many people have changed their minds with respect to our profession; they find we are not as bad as the quacks have represented us to be, and, in fact, all the intelligent stockmen are now our friends. Few men are so perverse or so dull that they cannot grasp and appreciate the difference between a scientific demonstration in the treatment of domestic animals and the methods generally adopted by the quacks. Where an opportunity has been given, I have found very little trouble in convincing them that some changes or amendments should be made to present laws for their own protection. The regulation of and protection from contagious diseases quite as much as the regulation of the practice of veterinary medicine and surgery. Who is better qualified to advise the legislature on such subjects than the man who has made veterinary surgery and therapeutics his one subject of investigation? Who knows better than the veterinarian the extent to which the public is imposed upon in the domestic animal industry and traffic? You should not let a chance go by to impress the great importance of such matters upon the minds of the members of our legislature from your districts, nor neglect to explain them when opportunity offers in the sessions of your farmers' institutes. By so doing you will be rendering a lasting benefit to mankind and honoring your profession. There never was a time when the importance of controlling the spread of contagious diseases, and the protection of the human family from the use of diseased meats marketed by unscrupulous persons, was more urgent than just now. For the first, herds and dairies should be placed under the supervision of skilled veterinarians. For the second, the system of meat inspection imposed by foreign and home governments must be extended to every slaughter-house and meat market in the land. It will not suffice to establish inspection in the larger towns and neglect the smaller, for the real danger lies there. There is where the unthrifty and diseased cattle that no packing house would use find a market, are butchered and peddled out by the quarter. Be it said to the everlasting shame of some butchers, that they buy such meat with the full knowledge of its condition, because it can be gotten very much cheaper, and because there is no way in which they can be caught at it and punished for the crime. I draw these conclusions both from personal observation and reliable information from different sources. I have no particular method or pet hobby to suggest as to how to accomplish these two vital things, but I say to you, that when this body shall have found a way and enforced it by the aid of intelligent legislation, you will have rendered a greater service to your neighbors, both with respect to person and property than veterinary skill can possibly render under present conditions."

Dr. S. H. Johnston opened the discussion, and spoke on the subject of legislation; thought we should have something in the way of a *practice act*, but did not believe it advisable to attempt any radical measure.

Dr. Gibson followed, saying we should have such a law, and as one of our members (Dr. Koto) is a member of the House, now is a good time to try for it; said Dr. Koto would like to hear the voice of the association on the subject.

Dr. Repp spoke, saying a measure should not be too radical; should provide for empirics who had been in regular practice for a certain length of time. After that certain examinations should be imposed upon those who desired to begin practicing. He referred to some of the provisions of the Pennsylvania veterinary law, etc.

Dr. Malcolm favored an act which would require registration—non-graduates to register as such, and then the public will not be deceived.

Dr. Heck favored registration, and issuance of a certificate, showing whether the applicant was a graduate or non-graduate; believed the two kinds of certificates should be printed on different colored paper.

Dr. S. H. Johnston said there was a time when the non-graduates were a necessity, for there were no graduates. Those people should be treated justly, and such as have been practicing for a long time should be permitted to continue, but his idea was to prevent new men of the same type beginning.

Dr. Brown moved, and Dr. Hammond seconded, that the matter be referred to the Judicial Committee, and that at a later session they should report as to the advisability of attempting to get some law enacted at this session of the legislature, and if they decide in the affirmative to report an outline for same. Voted and carried. President Shipley then appointed Dr. Hammond to fill vacancy on Board of Censors, and the applications for membership were referred to them.

Meeting then adjourned to meet at 1.30 P.M.

Afternoon Session.—Meeting called to order by President Shipley. The Board of Censors reported favorably on the applications for membership of D. E. Baughman, D. V. S., of Fort Dodge, Ia.; J. J. Repp, V. M. D., of Ames; J. R. Sanders, M. D. C., of Corydon; G. Lames, D. V. S., of Dysart; G. Kerr, V. S., of Washington; Hal. C. Simpson, D. V. S., of Denison, and J. J. Moore, V. S., and the gentlemen were duly elected to membership.

On motion by Dr. Gibson the chair appointed a Committee on Resolutions, as follows: Drs. J. I. Gibson, W. H. Austin, and R. R. Hammond.

The report of the Secretary was then called for, and was read as follows:

"GENTLEMEN: We meet to-day to celebrate the twelfth annual meeting of our association—to participate in the privileges, the pleasures and the benefits which may be derived from a real live veterinary association meeting. As your Secretary, it affords me great pleasure to be able to come before you bearing tidings of prosperity from the profession in general. The prosperity with which our country has been blessed during the past year has been shared and appreciated by the members of the profession. Almost without exception the letters that have come to me from veterinarians during the past year have spoken of an increasing business. I have made no systematic estimate, but I feel sure that I am perfectly safe in saying that the volume of the veterinary business done in Iowa during 1899 exceeded by fully 25 per cent. that of any previous year. During the seven years that I have served as Secretary of this association I have endeavored to keep a record of the names of all veterinarians in the State, with the name of the college from which they graduated, and the date of graduation. On this record I now find 249 names. Of this number, probably less than 150 are resident practitioners at the present time. The others have either moved into other States or taken up other lines of business. During a period of time prior to the decline in the value of live stock, which occurred about 1893, the comparatively few veterinarians who were then practicing in the State were enjoying a very lucrative business. Horses, especially, were selling at high prices, and when occasion demanded our farmer friends and stockmen sought eagerly for the services of good veterinary surgeons, and were willing to pay a good fee for the services rendered. This state of things soon brought a large number of new men into the profession. Many young men who had never had any previous training or experience in handling live stock, and who had no natural tact for such work, took up the study of veterinary science with a view to preparing themselves for the practice of the profession. Many of these fellows were theoretically bright, and graduated from the colleges with high honors, but soon found themselves —or others found them—to be utterly incapable of applying their theory to practical purposes. Thus it has been that many of the men who have gone out as graduates have thrown a shadow over the profession by utter failure in practice, simply because of being a misfit in that line of work, where some non-graduate of a practical turn has suceeeded much better. In this way, recognizing, of course, the dull seasons following the decline in prices of live stock, we can account for the great fluctuating movements of the veterinarians in Iowa. As a result of these changes our association has suffered also. Many of these graduates joined the association, but not finding practice sufficiently remunerative, nor the work suited to their liking, have failed to continue their memberships in good standing. Our records show that during the life of the association we have received into membership 147 names, a little less than one-half of whom are members in good standing at the present time. During the past year the association lost one member by death. Dr. C. H. Whitwell, a '96 graduate from the Chicago Veterinary College, practicing at Dubuque, died in November. Dr. Whitwell never attended one of our meetings, but his application for membership was accepted at our annual meeting, held January 13, 1897. With the number of veterinarians now practicing in this State, and the increase that we may reasonably expect with the increase of business, the association should experience a considerable growth in membership during the next few years. Possibly we may be able to offer greater inducements to veterinarians to join us. While we have long enjoyed the reputation of being one of the live organizations of the kind, there is still room for improvement. There is not always that enthusiasm manifested by all our members that insures success. Such has been my experience while preparing our present programme. I think about twenty of our members, when asked to prepare papers for this meeting refused for one cause or another. Our meetings should be made everything along the line of instruction, benefit and pleasure to the members and to the profession that it is possible to make them, and to make them what they should be, and to accomplish all that such an organization should accomplish, will require the united efforts of all the members. I am convinced that one of our needs is a programme committee. We have no executive committee. All the work that would naturally fall to the attention of such a committee has, in the past, generally fallen upon the Secretary. The responsibilities of the Secretary have been too great either for the good of the association or for the member who has had the position to fill. Few of our members realize what the duties and responsibilities of that office are. The expenditure of sufficient time and thought to do it all means a considerable sacrifice to one's own business—more than one can afford, and hence the association's interests are to a certain extent neglected. This committee might be known as an executive committee, or as a programme committee. It should be made responsible for all arrangements for the meetings—place of meeting, programme, etc. It should also be authorized to use any money in the treasury, for purposes connected therewith, as in their best judgment would be profitable to the association. In closing, I desire to express to the members of the association my sincerest appreciation of their kind friendship and the ever courteous treatment that has, without exception, been extended to me during all the long period that I have acted in the capacity of Secretary. You have kindly overlooked my errors, and given me only encouraging words for the humble, but earnest efforts I have made to serve you. Again thanking you, I submit the above as my report.

"Respectfully,

"JNO. E. BROWN, *Secretary*."

The report was accepted, and discussion followed.

Dr. Gibson spoke regarding the work of the Secretary, and thought the members should take more interest in the way of writing papers and helping to make the meetings interesting; said it is worth the effort as a schooling; brightens us up on these subjects. Did not believe the committee spoken of would do much good. Thought the Secretary would still have the work to do. Believed an appropriation should be made by which the Secretary might employ a stenographer to do some of the work.

Others favored appropriating a certain amount for stenography hire, thus aiding the Secretary in his work.

Dr. Niles moved that $25 be annually appropriated for the Secretary's use. Dr. McLeod seconded. Voted and carried.

The report of the Treasurer was then given, showing total receipts since last meeting, $73.75; balance in hand at that time, $28.83; total, $102.58. Itemized expenditures, $30.73, leaving balance in hand, January 10, 1900, $71.85.

Moved by Dr. G. A. Johnson that the chair appoint an Auditing Committee of three, and that the Treasurer's report be referred to them. Voted and carried. The chair appointed Drs. G. A. Johnson, W. B. Niles, and C. J. Hinkley as an Auditing Committee.

Dr. Niles reported as committeeman on speakers for Farmers' Institutes; said he had done considerable work without very definite results; a few speakers had been placed, but as a rule the institute preferred to spend their money to get some one to lecture to them on other subjects. On motion the report was accepted and the committee discharged.

Dr. Talbot, as chairman of Committee on Disease and Treatment, made a verbal report, referring to infectious abortion, cornstalk disease, parturient paresis, black leg, actinomycosis, and these subjects were discussed by other members.

Dr. D. H. Miller used the bi-chloride solution treatment in one herd afflicted with infectious abortion, and the result was very satisfactory. Later the trouble began again in the same herd, and the treatment was again applied, but to no effect.

Dr. McLeod used ℥iv doses of a two per cent. solution of carbolic acid, orally for ten days, resulting successfully.

Dr. I. F. Miller used carbolic acid orally in one herd for ninety days—not successful.

Dr. Talbot reported one success and one failure with the carbolic acid solution treatment.

Dr. Niles reported several cases that did well with the acid treatment, given once daily, and gradually increasing the dose until one-half ounce was given at a time. He thinks the disease is on the increase, and every possible effort should be made to learn something definite about it.

Dr. Repp gave a history of some investigations that have been carried out concerning the bacillus of infectious abortion; thinks probably the germ has been found.

Dr. S. H. Johnson took up discussion on cornstalk disease. He gave reasons for thinking that the ptomain, or whatever it is, does not abound in the stalk, but in the imperfectly formed ears or "nubbins."

Discussion followed by Drs. Hammond, Gibson, Hinkley, Stewart, Austin, Heck, and others. Dr. Johnston thinks it is a good idea to feed flax meal when the cattle are turned into fresh fields of stalks. On motion of Dr. Hammond the committee was continued another year.

The Committee on Sanitation (Dr. Niles, chairman) then reported, and discussion followed on the subjects of state laws, tuberculin tests, control of contagious diseases, etc., and was taken part in by Drs. Repp, Stalker, Gibson and others.

Dr. S. Stewart, of Kansas City, was present, and on being introduced gave a very interesting talk on "Some Parasites Affecting Swine." He referred to the kidney worm (*stephanusus dentatus*) and tracheal or lung worm (*s. paradoxus*). He thinks two per cent. of the hogs west of the Ohio River are affected with *trichina spiralis*.

After discussion on these subjects the meeting adjourned until 7.30 P. M. for supper.

Evening Session.—Meeting was called to order at 8 P. M. by President Shipley.

A report of last year's clinic was made by Dr. Talbot, briefly as follows: Radical operation for hernia, unsuccessful; operation on quittor, successful; operation for double stringhalt, successful on one side; division of cunean tendon for spavin, lost sight of; operation on cryptorchid, successful. Discussion followed on the subjects of hernias, sutures, stringhalts, neurectomy, etc.

Dr. Heck opened the discussion on azoturia, and some time was given to the subject.

Dr. G. A. Johnson gave the *modus operandi* for treatment of scirrhous cord. Two washings with creolin solution, then dissect out the tumor; pack the cavity with surgeon's gauze, using two drams each of boracic acid and acetanilid. The after treatment consists of daily cleansings by turning the water from the hydrant through the wound. He thinks that in dressing the cavities of all large or deep wounds large quantities of boracic acid and acetanilid should be used.

Dr. Johnson also reported a case of colic which had been given tr. opii, ℥ iii, and ol. peppermint, ℥ i, in a douche. The colic ceased, but enteritis supervened, and the horse died. The question was raised, was it the oil of peppermint in that quantity that produced the enteritis? Also on post-mortem in this horse was found a rupture in the pericardial sack—apparently of some time standing. He then learned that several days previous to this attack of colic the horse had run away, and he believed the rupture had occurred at that time.

The Auditing Committee then reported having checked up the Treasurer's accounts and found them as given in his statement. The report was accepted and the committee discharged.

Some further arrangements were then made for the next morning's clinical demonstrations, and the meeting adjourned to meet next morning at 9 o'clock at Dr. Talbot's hospital.

Jan. 11, 1900.—This forenoon was given to the clinics, and a general interchange of ideas concerning methods employed in veterinary surgery—special and general. The following operations were made: For quittor, abscess or fistula in sacro-coccygeal region; caudal myotomy; removal of clitoris; radical operation for hernia, using silver wire suture.

Afternoon Session.—Meeting called to order by President Shipley. Secretary called attention to the fact that in 1898, Dr. W. A. Heck, who had for some time been an active member of the association, engaged in B. A. I. work, and being assigned to duty outside the State he was elected to honorary membership—such membership to continue as long as he remained a non-resident of the State. That he had again become a resident practitioner, and some action in the matter was probably advisable. The Doctor was present, and, signifying his desire to again become an active member, on vote the request was granted.

Discussion then followed concerning tuberculin, tuberculin tests and fees for making same.

Dr. Brodie, of Cedar Falls, then read a paper on "Acute Indigestion." Discussion followed regarding the use of barium chloride in such cases, trocar and canula, stomach tubes, tapping stomach, abscesses, the result of the use of trocar and canula, etc.

Dr. Malcolm, of New Hampton, read a paper on "Some Diseases of the Œsophagus." Discussion followed regarding the rubber tube and warm water for unchoking animals. Several of the members have seen good results, ordinary three-fourth-inch garden hose being used.

Dr. Hal. C. Simpson, of Denison, read a paper on "Barrenness in the Larger Domestic Animals." Discussion followed.

Dr. Simpson thinks impregnators very serviceable in cases of constricted os. Concerning artificial impregnation in general he favors the capsule method.

Dr. Malcolm spoke concerning cows that are "frequent bullers"; his advice is to let them go over certain periods without service.

Dr. Hazlet, through some mistake, did not have his paper on "Neurectomy *versus* Treatment," but gave a short talk on the subject, taking the ground that the operation of neurectomy is frequently practiced unnecessarily. A sort of general *pro* and *con* debate followed.

Election of officers was then made the order, and resulted in the election of

President—Dr. J. H. McLeod, Charles City.

First Vice-President—Dr. C. E. Stewart, Chariton.

Second Vice-President—Dr. D. H. Miller, Harlan.

Secretary-Treasurer—Dr. J. E. Brown, Oskaloosa.

Board of Censors—Drs. J. J. Repp, Ames; G. E. Noble, Osage, and H. L. Stewart, Oakley.

The retiring President then thanked the members for honors and favors and Dr. McLeod took the chair.

Dr. Gibson, as Chairman of Committee on Resolutions, reported the following:

With reference to the Veterinary Department of the State Agricultural College:

WHEREAS, The conditions in prospect for the Live Stock Industry of this country indicate an increasing demand for qualified veterinarians, and an increase in the number of students which will seek an education in veterinary science, and

WHEREAS, The above-mentioned conditions suggest the necessity of a thorough course of scientific training at the veterinary colleges; be it

Resolved, That it is the sense of the Iowa State Veterinary Medical Association that the faculty in the Veterinary Department of the Iowa Agricultural College be increased sufficiently to serve the best interests of all students who attend, to command recognition from State Veterinary Boards, to make the graduates therefrom eligible to membership in any and all veterinary associations in this country; and be it

Resolved, That it is the sense of this association that in the fulfillment of these requirements it will be necessary to increase the faculty of the Veterinary Department by the addition of one professor. And be it

Resolved, That this association earnestly request that the change be made, and that the members of this association use their influence to induce the trustees of the college to take such action as may be necessary to give the graduates from the Veterinary Department the standing above referred to.

WHEREAS, Through the death of Dr. C. H. Whitwell this association and the veterinary profession loses an honored member, be it

Resolved, By the members of this association, that while we deeply feel the loss sustained, we meekly bow in submission to the will of the All-wise Father whose call we must all obey.

Resolved, That we tender to Mrs. Whitwell our heartfelt sympathy in the hour of her sad bereavement, and while she mourns the loss of a dutiful husband, we mourn the loss of a professional brother.

Resolved, That we appreciate and extend a vote of thanks to Dr. Talbot for the generous clinic furnished, and that the Treasurer be instructed to reimburse him for any expense incurred in the matter from the association funds.

On motion by Dr. Shipley a vote carried to adopt the resolutions as read.

Dr. Koto, as chairman of Committee on United States Army Legislation, reported the following resolution, which was adopted:

WHEREAS, It is essential for the highest efficiency of the army, for the honor and standing of the veterinary profession, and for the humane treatment of the army horses, that an efficient veterinary service be established in the United States Army,

Resolved, That it is the sense of the Iowa State Veterinary Medical Association that we earnestly request that our Representatives and Senators in Congress use their influence to organize an independent Army Veterinary Corps that will be a credit to our nation; that a veterinary director be provided; that the service be extended to the artillery and the transportation departments; that the veterinarians already provided for shall bear the rank of second lieutenant; that the Veterinary Corps shall carry its own line of promotion.

Resolved, That a copy of these resolutions be sent to each of our Representatives and Senators in Congress.

The Judicial Committee reported the outline of a bill to regulate the practice of veterinary medicine, surgery and dentistry in the State, such as they favored an attempt to get through the State legislature this year.

The report was adopted and the chair instructed to appoint a committee of three, of which Dr. Koto should be chairman, to act as a legislative committee. The chairman then made up the committee as follows: Drs. P. O. Koto, chairman, J. I. Gibson and J. J. Repp.

By vote it was decided that the office of Judicial Committee should be continued.

Committees were then appointed as follows:

Judicial—President and Secretary; Drs. P. O. Koto, J. I. Gibson and H. E. Talbot.

Sanitation—Drs. W. B. Niles, S. K. Hazlet and P. Malcolm.

Moved by Dr. Simpson that we adjourn, subject to the call of our President and Secretary for the holding of our next annual meeting. Seconded by Dr. Miller. Voted and carried.

JNO. E. BROWN, *Secretary*.

WESTCHESTER COUNTY VETERINARY MEDICAL SOCIETY.

The annual meeting was called to order at the Fifth Avenue Hotel, Mt. Vernon, May 10, at 9 P. M., Vice-President Morrison in the chair and ten members present. After the usual reports of committees, etc., a motion was made and carried to have properly signed and sealed suitable resolutions of thanks to Profs. Doremus, Grange, Freeman and the Hon. James Wood, for their valued assistance at the public meeting held in Yonkers on March 27.

On motion it was resolved that the Vice-President appoint a committee of three members to draw up suitable resolutions of condolence upon the death of President M. J. Tewey, D.V.S., to be spread upon a memorial page of the society records; also that a copy be published in the several county papers, and one be engrossed and sent to the family.

The following resolutions were then adopted:

WHEREAS, The Divine Creator has, in his infinite wisdom, called from his earthly labors and from an association amongst us, never to be forgotten, our beloved, revered and honored President, Martin J. Tewey, D.V.S., and

WHEREAS, This Society suffers a loss that will be greatly felt by us, we are greatly comforted in the certain assurance that it was for his great good, and as well that he goes to that promised reward which he so richly deserved, and

WHEREAS, It was known to all who had met him that he led an exemplary life, was an honored citizen, possessed only of those attributes of a true and good man, was modest, of cheerful disposition, generous to a fault, an incessant worker for the welfare of mankind as well as that of the animal, whose care was his careful study, of noble character and loyal to the best interests of all, be it therefore

Resolved, That this Society, who greatly and reverently mourn his loss as a valued member and companion, do, as a token of the love and esteem in which he was held, tender to his family our deep and heartfelt sympathies in this their hour of affliction, and may He who doeth all things wisely and well comfort and protect them ; and

Resolved, That a copy of these resolutions be spread upon a memorial page of the records of this Society ; a copy published in the several county papers and a copy transmitted to the family of our late member.

Vice-President Morrison stated that this was an annual meeting and the election of officers for the ensuing year was in order. By ballot the following were elected :

President—W. B. Moorhouse.

Vice-President—R. R. Morrison.

Secretary—R. C. Jenks.

Treasurer—C. H. Martin.

Trustees—F. P. Dorian and J. S. Lampkin, 3 years ; F. O. Wright and J. M. Laffan, 2 years ; G. S. Bennett and E. Sattourell, 1 year.

On motion adjourned. R. C. JENKS, D. V. S., *Secretary.*

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The New York State Veterinary Society occupies in various ways a unique place in the veterinary profession of America.

The Empire State contains far more regularly qualified veterinarians than any other in the Union, and the State society is the visible and legal representative of this great body of practitioners.

The association nominates two candidates for each vacancy on the veterinary examining board, one of whom is appointed to the place, so that the members present at the meeting when nominations are made virtually fix the character of the license examinations by the character of the candidates nominated.

The character of the profession in the State is thus placed in the hands of the veterinarians themselves and the influence of each veterinarian upon his profession can only be exerted in due measure through the association. The responsibilities of New York veterinarians to the State society and to the profession thus become practically identical.

The laws relating to veterinary education and practice in New York are in advance of those of any other State, both in general and professional requirements. New York is the pioneer in veterinary education in the United States; her colleges are the oldest, their alumni the most numerous, and the college buildings and equipment the most complete.

It becomes the duty of the veterinarians to make and maintain the State society first among the States, and the responsibility belongs to all veterinarians alike, whether members of the society or not.

It is hoped and intended that the approaching State meeting at Ithaca will begin a new era in the society's usefulness.

President Bell says make the invitation universal; "let all be invited who have ears to hear," which can only be interpreted to mean that there should be a large gathering of the profession.

The Committee of Arrangements will make it worth while for everybody to attend. The committee has three objects in view, each of which it purposes making an unqualified success.

First: It is to be a great educational meeting, where each veterinarian will get something of value which he can carry home and use. The committee will secure plenty of brief interesting papers of every-day value, which will evoke all the discussion the time will permit. The members can be assured that it will not be necessary for county secretaries to present long reports in order to kill time. Clinics will be made a predominant feature. Operations will be performed by leading veterinarians, and they will be largely along the line urged by Dr. Cowie, of Ogdensburg—that is, the more common and practical operations by the best and simplest methods, so that each member will receive helpful suggestions. The committee will furnish abundant material and all needed conveniences, and will give special attention to anæsthesia and antisepsis.

Second: It is to be preëminently a professional reunion where all veterinarians, whether non-members, ex-members or members, shall constitute one harmonious body, and each enjoy the same benefits of instruction.

Third: The meeting will have its social side. Visiting veterinarians will be pleasantly cared for throughout the meeting and the committee will provide special entertainment for the evening of the first day. Ample provision will also be made for the entertainment of visiting ladies. Picturesque Ithaca, with the exceptionally attractive campus of Cornell University, should induce a large number of ladies to attend. Veterinarians having papers or case reports to offer or who are willing to take part in the clinical demonstrations or who have any suggestions to offer in reference to programme are urged to communicate at once with the Secretary, Dr. C. D. Morris, Binghamton, or the chairman of Committee of Arrangements, Dr. W. L. Williams, Ithaca.

If any veterinarian, be he member or not, is specially interested in any subject or operation and will communicate his wishes, the committee will accommodate him as far as possible. It is to be everybody's meeting. W. L. WILLIAMS,
Chairman Committee of Arrangements.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The REVIEW is pleased to announce that every prospect is bright for a most successful meeting in September. From a letter of Secretary Stewart, dated June 25, the following facts are taken:

"The details of the preparation for our meeting to be held in Detroit are nearly completed, and the promises made in a circular letter issued several weeks ago will be more than fulfilled. The veterinarians of Michigan, Ohio, and Indiana are saying that they appreciate the holding of this meeting in their midst, and will attend in full force. Communications received from several other States indicate a large attendance.

"The veterinarians of Detroit are taking a lively interest in the coming meeting and are a unit in a determination to make good the reputation of Detroit as a convention city, and are anticipating with much pleasure a visit with members of their profession from all parts of the continent.

"The program as planned will provide ample time for presentation and full discussion of all papers and reports, as well as abundant time for clinics, and leave opportunity for social pleasure."

The following is a partial list of the papers to be presented, and are in addition to those announced in the June REVIEW:

"The Relation of Veterinary Medicine to the Public

Health," by Dr. Wm. Herbert Lowe, Paterson, N. J.

"The Etiology and Treatment of Spavin," by Dr. W. J. Martin, Kankakee, Ill.

"Inoculation against Texas Fever," by Dr. John W. Connaway, Columbia, Mo.

"Snakes, Venoms and Antidotes," by Dr. E. W. Ranck, Philadelphia, Pa.

"Difficulties found in Enforcing the Law requiring Tuberculin Test," Dr. Austin Peters, Boston, Mass.

"Difficulties in the Way of Municipal Meat Inspection in the South," Dr. C. A. Cary, of Auburn, Ala.

There will be three sessions of the surgical clinic, of 2½ hours each, affording ample time for the demonstration of numerous operations, including those for relief of roaring, cribbing, wry-tail, shoe-boil, lameness, and dental diseases; antiseptic ridgling castration, etc. Among those who will take part in the clinic are Prof. L. A. Merillat of Chicago, Prof. W. L. Williams of Ithaca, Prof W. L. La Baw of Boston, Prof. John W. Adams of Philadelphia.

A central location, a beautiful city, a delightful climate, a generous hospitality, an attractive program, cheap transportation, and, above all, general professional prosperity conjoin to assure us that the Detroit meeting of the American Veterinary Medical Association will be the greatest in its history.

THE ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE elected the following officers for 1900–1901: President—R. W. Ellis; Vice-Presidents—W. H. Lowe, H. D. Hanson; Secretary and Treasurer—F. R. Hanson, 160 Eldridge St., New York. The association will be continued as of old, but this will not prevent the natural formation of another association consisting of any or all alumni of the Veterinary Department of New York University.

NEWS AND ITEMS.

DR. P. D. BRAY, of Columbia, Tenn., is in South Africa.

A CORRESPONDENT writes that there is a good opening for a veterinary surgeon at Sidney, Ohio.

PROF. JAMES L. ROBERTSON, of New York, has recently been travelling through the West.

WE hear that Prof. M. Stalker has ceased to be the head of the Veterinary Department of the Iowa Agricultural College.

DR. WM. FRETENBERGH, of New York City, has accepted the assistantship to Dr. T. S. Childs, of Saratoga Springs, N. Y., for the season of 1900.

DR. H. A. MEISNER, of Baltimore, has been appointed State Veterinarian of Maryland, to succeed Dr. Clement, who has held the position for a number of years.

DR. H. L. RAMACCIOTTI, of Omaha, Neb., has received the appointment of food inspector for that city for a term of three years.

DR. C. F. DAWSON has severed his connection with the Bureau of Animal Industry and associated himself with the well-known drug house of Parke, Davis & Co., of Detroit.

THE HORSELESS AGE.—Tommy: "Paw, what is the horseless age?" Paw: "Eight years, as horses never get past seven."

DR. HUGH THOMSON, Shabona, Ill., writes the REVIEW that he can direct two qualified veterinarians to good locations for practice, and invites correspondence.

DR. C. O. DURFEE, of Palmyra, N. Y., has recently been appointed to the Federal Meat Inspection force at Buffalo, and assigned to post-mortem work.

DR. T. W. SCOTT, of Clarksville, Tenn., has accepted an appointment as Meat Inspector in the Bureau of Animal Industry and has been assigned to duty at Kansas City.

DR. B. P. WENDE, in connection with his govermental duties at the N. Y. Central stock yards of Buffalo, lends valuable aid to the S. P. C. A.

DR. L. A. ROBINSON, of Buffalo, has found the bee industry to be a most pleasing and profitable pastime and his apiary has rapidly grown to considerable dimensions.

DR. J. M. JOHNSON, M. R. C. V. S., of London, England, is stationed at Buffalo, and exports to the former city a regular weekly consignment of horses.

DR. T. A. BOWN has found the traffic in horses more pleasing to his taste than that of the practice of medicine. So the genial doctor is regularly seen with his consignment of horses at the weekly horse sales at Buffalo.

"ENCLOSED please find check for $6, as subscription to Vols. 23 and 24 of the REVIEW. The longer I take it, the more eagerly I look for it each month. With best wishes for a prosperous year."—*E. L. Volgenau, New Haven, Conn.*

"THE REVIEW grows better every year. I look for it each month with pleasure, as each copy is sure to contain information that is of great value to a country practitioner." —*J. M. O'Reilley, M. D. C., Merrill, Wis.*

DR. J. H. MCNEILL, recently of the B. A. I. force at Buffalo, N. Y., has been transferred to Ogden, Utah, where he goes to do special work in the eradication of scabies in sheep in the herds of Northern Utah and Southern Idaho.

"I WOULD not be without the REVIEW for twice the amount I pay each year. I consider it the best veterinary journal printed in the United States.—*E. M. Beckley, D.V.S., Meriden, Conn.*

NEW BOARD OF EXAMINERS FOR NEW YORK.—The Regents of the University of the State of New York made the following appointments of examiners on June 25: Drs. George H. Berns, F. L. Kilborne, Charles Cowie, John A. Bell, and Claude D. Morris.

DR. PAUL GIBIER, director of the New York Pasteur Institute, died on June 12th. He studied for two years under the late Louis Pasteur, and removed to New York about twelve years ago, establishing the institute which has achieved considerable reputation throughout the country.

PINKEYE has been so prevalent in and around Denver, Col., that there was talk of abandoning the racing meeting scheduled for Overland Park last month. Only a very few horses were entered in the races, and the runners were as scarce as the harness performers. Much loss has been sustained by owners of horses of all sorts, the disease having resulted fatally in very many cases.

HORSES AND VALUES.—Government statistics show that the decline in horse values in the United States from 1892 to 1896 amounted to the appalling sum of $500,000,000. Those who thought the bursting of the boom was but a small affair can ponder those figures. Since 1896 the increase in horse values amounts to over $100,000,000, with a decrease of nearly 2,000,000 in the number of horses.

MRS. HARBAUGH, widow of the late Dr. W. H. Harbaugh, of Richmond, Va., placed a small advertisement in the REVIEW, offering for sale the ambulance used by her husband. She writes us to stop the advertisement, as she has been simply besieged by letters of inquiry, and saying that Dr. James T. Glennon, of Newark, N. J., had gone down to Richmond and purchased it. Moral: If you wish to reach the veterinarians of America, advertise in the REVIEW.

DR. W. HORACE HOSKINS, of Philadelphia, graduate of the

American Veterinary College, class of 1882, was in attendance upon the commencement exercises of the New York-American Veterinary College, at the Metropolitan Opera House, New York City, June 7, he never having missed paying this tribute to his alma mater since his own graduation, this being the nineteenth pilgrimage he has made to similar events. At the annual alumni dinner he is always to be seen, where his voice is ever raised in honor of the old school.

SOME WEEKS ago the engineer of an automobile turned his ungainly rig onto the New York Speedway, and set out to enjoy himself. The mounted police at once set sail for the intruder and soon caught him, but after it had been stopped the "thing" refused to "get up" again and was stalled on the big drive for more than half an hour, causing two or three serious runaways among the high spirited horses passing its uncouth shape. Finally connection was established among the numerous wires, the electricity flowed on its proper course and the big machine trundled off the speedway, escorted by a big guard of police.—*Breeder's Gazette.*)

A CURIOUS ACCIDENT resulting fatally to man and horses is reported from Syracuse, N. Y. A horse attached to a light speeding wagon ran away, apparently grew crazy and in his mad flight jumped neatly into a large express wagon being driven soberly along the street. The impact of the flying horse killed the driver of the express wagon dead on the spot, and the unusual sensation caused the steady old horse to also run away. The jolting of the heavy springless wagon was apparently more than the horse in the wagon as a passenger could stand, so he made a flying leap out over the dashboard. Both went down in a heap and when things were sorted out and straightened up it was found that both horses were so badly damaged as to necessitate the ending of their sufferings by merciful shooting, which was forthwith attended to by the policeman on hand.

ALKALOIDAL GRANULES IN CANINE PRACTICE.—One of the problems in the treatment of dogs and other small animals is the administration of medicines. Many of such patients are so rebellious when an attempt is made to give liquid medicines, that the struggle excites the patient and endangers the administrator, and where repeated doses are necessary it is usually abandoned after a few such experiences. Pills prepared after a prescription are often bulky and difficult to give, frequently being soft and sticky, besides entailing loss of time and incurring considerable expense. To overcome this lack of efficient medication, the Abbott Alkaloidal Company, of Ravenswood Station, Chicago, have introduced to the veterinary profession a series of popular alkaloids and concentrated medicines in granule and tablet form which are a real boon to the canine prescriber. They can be carried in a neat little pocket case in sufficient variety to meet the demands of almost every kind of case; a dose may be administered by the practitioner at the time of his visit as an object lesson to the person whose duty it will be to continue them, and, by charging a reasonable price for them a profit will fall to the veterinarian instead of the druggist. They advertise these tablets elsewhere in the Review, and offer to supply veterinarians with samples for trial. We think their reliability and facility of administration will commend them to those whose practices bring them many of the smaller animals to treat.

FOR SALE OR TO LET,

A Veterinary Practice, consisting of a well-established Hospital, situated in one of the most celebrated towns in America. The right man ought to easily do a business of at least $5000 a year, as the present owner has averaged $7000 a year for ten years. The hospital contains 10 large standing stalls, and 3 big box stalls; a very large carriage-house, operating room, office, medicine room, and seven nice large living rooms over the office, with all up-to-date improvements, and a very nice up-to-date ten-room cottage; all property in first-class condition. A grand chance for the right man. Terms for sale or lease will be made satisfactory. Population 18,000; for about four months it is from four hundred to six hundred thousand. No other qualified Veterinarian in the county. Address C. S. T., care American Veterinary Review.

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,

Veterinary Publisher, and dealer in Veterinary Books, Drugs and Instruments, is the authorized agent of the Review in Chicago and the Middle West, and will receive subscriptions and advertisements at publisher's prices.

SECRETARIES OF V. M. ASSOCIATIONS

Can make money for themselves and do much good to their profession by getting up Subscription Clubs for the Review. Write us for club rates and full information.

REVIEWS FOR EXCHANGE.

I have these duplicates: Vol. XVIII, July (1894); Vol. XV, April and May (1891). I need the following: Vol. XIX, September and October (1895); Vol. XVII, January (1894). Would like to exchange with some one having duplicates, etc. Hugh Thomson, V. S., Sharbona, Ill.

NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the American Veterinary Review. Any one having an extra copy of that number please address H. D. Stebbins, V.S., West Winfield, N. Y.

BACK NUMBERS REVIEW FOR SALE.

Volumes 2, 4, 8, 9, (complete); April, '79, '81, '82, '83; May, '79, 81; June, '79, '81; July, '79, '81; August, '79, '81, '83; September, '79, '81, '83; October, '79, '81; November, '79, '81, '83; December, '81, '82, '83; January, '80, '82, '83, '84; February, '80, '83, '84; March, '83, '84.

Apply C. E. C., 141 West 54th street, New York City.

AMERICAN VETERINARY REVIEW.

AUGUST, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

PROSPECTS OF THE ARMY BILL.

At the approaching meeting of the A. V. M. A. it will behoove the members to give very earnest consideration to the status of the amendment to the Army Reorganization Bill, which passed the Senate May 4 and now hangs in midair, having yet to run the gauntlet of the House of Representatives. The fact that we have gained a half victory by a very narrow margin should not produce over-confidence, and we should regard the work to be done as far greater than that which has been accomplished. An analysis of the vote in the Senate when Mr. Kenney's amendment was adopted—yeas 25, nays 23, not voting 39—does not justify the feeling that the battle is nearly won. In the June REVIEW we very thoroughly summarized the discussion in the Senate, and gave there the substitute amendment offered by the Secretary of War. The outspoken opposition of the Secretary is very unfortunate for the cause, and probably proceeds from our enemies in the War Department, as it is scarcely likely that the new head of the department can be familiar enough with the details of the service to have any decided opinion on the subject. What we need most of all is intelligent missionary work with the Secretary, giving him a clear idea of the scope of the proposed corps, making it plain how advantageous it would be to the efficiency of the Army in peace and war. The necessity for this may be clearly seen by his recommendations to Congress. He has been asking for recommendations from the various heads of departments of the Army as to the needs of the service; why should he not ask what a chief veterinarian would recommend? We suggest to the national association the creation of a special committee to work with the Secretary of War before the assembling of Congress, so that our cause may be espoused rather than opposed by the executive head of the War Department. If his friendship cannot be gained there will be just that much harder battle for our workers at the front. But with his powerful influence on our side, and a strong influence brought to bear upon Representatives throughout the country, and especially the members of the Committee on Military Affairs, the struggle would be short and decisive. We have been forewarned by our experience in the Senate; let us be forearmed for the conflict in the House. Nor should we adopt any "rule or ruin" tactics. If it becomes morally certain that the amendment cannot pass in its present form, we should not disdain a respectable compromise, obtaining the high ranks asked for and yet making the service subordinate to the Adjutant-General's office. This would be much better than to lose everything in the cry of "all or nothing." We gained much in 1899, and to lift our representatives in the army to high commissioned officers (in place of civilian nonentities, as they have ever been) would be a wonderful stride for 1900. The multiplicity of wars, which seem to be rearing their ugly heads from all corners of the earth, may make it necessary in a short time to greatly increase the numerical strength of the standing army of this country, especially the cavalry arm of the service (which has been clearly proven to be the most efficient), and then it may be a simpler proposition to ask that the veterinary service be organized into a corps, as now sought to be created.

These remarks are offered for the consideration of those who have given to the subject so much hard work and careful thought, in the hope that out of the national body may come forth a wise and successful programme for the struggle that yet lies before us.

"THE DOCTOR BE D——D."

"'The average patient when nearly well of a sickness will take a bottle of Rotgut's Relief or a box of Poopendike's Pills, and to these he will give all the glory, and 'the doctor be d——d.'—*Medical World.* The experienced veterinarian is fully capable of comprehending the *ennui* which actuated the writing of the above paragraph.—*L. A. M.*"

We have copied the above item from this month's installment of the "Department of Surgery" for the purpose of giving it more prominence, and of discussing some of the phases of the inferences contained in it. The first section of the paragraph, credited to the *Medical World*, suggests a familiar experience with medical and veterinary practitioners, and is simply a terse way of stating the termination of very many cases, the treatment of which has consumed considerable time. The second portion of the paragraph, signed "L. A. M.," is in the nature of an endorsement of the truth of the *Medical World's* observation from a veterinary standpoint, and is from the pen of that well-known surgeon and writer, Prof. L. A. Merillat, of Chicago. We desire to see whether the number of such terminations cannot be reduced, and to inquire if they are not in some instances directly traceable to the veterinarian. Of course, we have no intention of conveying the impression that they can always be avoided, but are there not many cases where more diplomacy on the part of the practitioner would save his client to him and he receive just credit for his intelligent and well-directed curative efforts? It is disheartening to a conscientious practitioner to have a client enter his sanctum holding in his hand a bill that had been sent to him some months previously for attendance upon a lame horse, which had received a very effective application of the actual cautery, and ask if half the price charged isn't sufficient, "particularly as you didn't cure my horse. He was just as bad when you got through as he was before you begun; so a friend of mine told me to rub him with hot vinegar, and he's come all right." That sounds familiar, doesn't it? Here's another: You are called to a violent case of gastric indigestion, the animal eructating gas and having dyspnœic symptoms. You administer antiferments and absorbents, with anodynes and other approved therapeutic measures. Finally the patient ceases the symptoms of distress, his rapid pulse and respirations subside, and he is considered out of danger. His appetite is entirely suspended, however, and the practitioner knows that the proper treatment is to allow the stomach a good rest until it can regain its normal functions, at which time the appetite will return as rapidly as is consistent with its condition. He advises his client of this, who remains dormant for twenty-four hours, at which time, food still being refused, the assafœtida bag is forced into the mouth of the unresisting patient, and he is compelled to chew on it for a couple of days, when, his stomach having recovered by enforced idleness, the animal begins again to eat. The owner of that horse becomes a living testimonial to the value of this remedy, and he does not hesitate to make known the fact that his veterinarian failed to cure his horse. Or, again: A patient is brought to the veterinarian with skin eruptions, or with pimples from plethora, and is placed under depletive treatment, inaugurated by the exhibition of a brisk cathartic, and possibly followed by some alkali or arsenical solution. The blood has been so depleted by the purge that improvement begins, but the pimples not disappearing rapidly enough, a friendly neighbor's advice to try some condition powder or slippery elm is taken, and after a time the skin clears up. The work of the veterinarian is entirely forgotten by the magic of the slippery elm.

These instances could be prolonged until this issue of the REVIEW would be of its usual number of pages, and then only half justice would have been done the subject. But these being taken for samples of many, we submit that the picture is not overdrawn. Every practitioner has had just such experiences many times over. While the ones cited usually occur among the ignorant class of owners, they are not confined to them. The rich man, or the one who imitates the rich man, does it a little differently. He either sends for another veterinarian, or places the case in the hands of some friend of his coachman. The difference is in methods, not in results.

The question is how to lessen such results. In the case of the lame horse, we believe the tendency among most practitioners is to give too favorable a prognosis ; that is, in order to make the treatment more enticing, the date of recovery is too much curtailed. They know that if the client is told that by firing and blistering his lame horse he cannot hope to have him back into service for three months that the chances are it will not be undertaken, and the prospective fee vanishes. The truth should be the only guide. Reputations are worth more than the few dollars that injure the recipient in the end.

In the second case, medical treatment should not cease until the patient has entirely recovered, appetite and all. The stomachics, mild and unirritating, will be beneficial to the patient in more ways than one. The principal good they do is to keep the owner from harmful meddling, and the practitioner will receive ample credit for his part in the recovery.

A veterinarian without a certain amount of business diplomacy will find many instances where his reputation will suffer, while his brother, with more skill in the handling of men, will gather laurels, as well as shekels. We have no intention of advising that this be carried to the extent of humbuggery, but it is conscientious medical treatment where the patient is protected at the same time that the practitioner's local reputation is taken care of.

DR. SCHWARZKOPF OFF FOR CHINA.

Olof Schwarzkopf, V. M. D., known wherever English veterinary literature is read, who recently underwent a stringent civil service examination for appointment as veterinary surgeon, first-class, in the U. S. Army, was summoned to Washington on July 19, and received orders to immediately proceed to China, with the Third Cavalry. The order was modified sufficiently to permit the Doctor to return home and arrange his affairs, and he left on the 26th. This was rather a harsh summons for a starter ; but, soldier-like, he obeyed without a murmur, and is at this writing on his perilous journey to the

Orient. Mrs. Schwarzkopf will remain in the vicinity of New York until the Doctor has an opportunity to know something of his destiny. While the Army will gain a valuable veterinary officer, and the profession a representative in the service who will reflect credit and dignity upon it, thereby materially assisting in the elevation of the service, the profession at home will lose an esteemed and hard-working colleague, for he was ever ready with his pen and voice to assist in any movement looking to its advancement. Especially will REVIEW readers miss his valuable editorial contributions. But our last note from him as he hurried to catch the train for his long journey was: "Will forward notes from China for REVIEW if at all possible." We invoke the blessings of the Deity upon the good Doctor. May his trip be safe, and his return certain.

CAN YOU AFFORD TO STAY AWAY FROM DETROIT?

REVIEW readers will find elsewhere the full programme, so far as obtainable at this date, of the thirty-seventh annual meeting of the American Veterinary Medical Association, which convenes at the Russell House, Detroit, Mich., September 4, continuing on the 5th and 6th, while the generous hearted veterinarians of that section, unwilling to take the members away from the important events of the programme, and yet desirous of showing their appreciation of the presence of the national body in their midst, have arranged a delightful series of events for the 7th, including a visit to the great laboratory of Parke, Davis & Co., where luncheon will be served, and a picturesque steamer trip, at the termination of which a "frog and fish" supper will be the entertainment while the members are engaged in pleasant social communion. Carefully study the programme and ask yourself the question: "Can I afford to stay at home?"

THE NEW YORK STATE MEETING.

The week following the meeting of the American Veterinary Medical Association, the New York State Veterinary Medical

Society will hold its tenth annual meeting at Ithaca, the seat of Cornell University. Great efforts are being put forth to make this an important and profitable occasion from every phase, the clinical feature being an especially strong one for this meeting. Elsewhere in this number will be found an outline of the programme, and it is certainly sufficiently attractive to cause every veterinarian who can possibly lay aside his work for two days to accept the broad invitation to join with the members in making this the most successful meeting in the history of the society.

DR. ADOLPH EICHHORN, of the American Veterinary Hospital, New York, contributes to the current number of the REVIEW the first details of an operation for the relief of bone spavin which has been engaging the attention of European veterinarians for some time. It consists in neurectomies of the tibial and peroneal nerves, and is styled "double neurectomy for spavin." There are several cases at the American Veterinary Hospital awaiting this operation, and the Doctor promises that REVIEW readers shall be kept informed as to the results in the minutest detail; and if they are as successful as those reported by our Enropean colleagues, there can be but little question as to the popularity of the procedure with American veterinarians, as hitherto the results in many cases have been exceedingly embarrassing.

THE death of Prof. O. C. Marsh removes the most eminent authority on the prehistoric horse. He discovered in the Rocky Mountains and elsewhere many distinct specimens of the original horse, belonging to thirty distinct species, and he dug out a great many other perfect fossil animals as well. No one ever made so many important discoveries in the rocks as he did in this particular line, and at thirty-one years of age he was famous in the scientific world. He was the leading authority on the fossil horse, and apparently brought to aid him in his work a measure of good luck never enjoyed by any other geologist. Fortunately he leaves behind him a complete account of his discoveries.—(*Breeder's Gazette.*)

ORIGINAL ARTICLES.

TEXAS FEVER.

EXPERIMENTS MADE BY THE MISSOURI EXPERIMENT STATION AND THE MISSOURI STATE BOARD OF AGRICULTURE, IN CO-OPERATION WITH THE TEXAS EXPERIMENT STATION, IN IMMUNIZING NORTHERN BREEDING CATTLE AGAINST TEXAS FEVER FOR THE SOUTHERN TRADE.

By J. W. Connaway, Veterinarian Missouri Experiment Station, and M. Francis, Veterinarian Texas Experiment Station.

(*Continued from page 256.*)

"COLLEGE STATION."—6 HEAD SPECIAL EXPERIMENT CATTLE.

This lot consisted of one pure bred Shorthorn bull and five high grade Shorthorn heifers. They were about ten months of age, and were raised in Cooper and Boone counties, Missouri. They arrived at the Texas Experiment Station in good condition January 1st, 1899.

On Jan. 7th each received subcutaneously 1 cc. of defibrinated immune blood from a grade Shorthorn cow on which were a considerable number of ticks (B. bovis) in various stages of development. The calves were kept in a dry lot, in which there were no ticks, and were not allowed to come in contact with Texas cattle, or tick infested grounds, until April 11th. They were examined regularly and carefully for ticks. In doing this each one was turned on its back to allow a thorough examination. All the heifers had white skin along the belly, so that it was exceedingly improbable that any ticks were attached to them and escaped notice, until they were sent to the pasture in April. Their diet at the north had consisted of hay, ground corn, oats and bran. This was gradually changed to cotton seed meal, bran and oats, and cotton hulls. They were fed regularly all they would eat. Daily temperature records were made from Jan. 7th until August 31st. The changes in the blood were determined by the "hæmatokrit." The blood was examined twice a week. A gap occurs in the record, from March 22 to April 17th, on account of an accident to the apparatus. All of the samples of blood for examination were taken from the ears, and at once subjected to a very rapid centrifugal action. By comparison with other cattle's blood we may regard the normal percentage of red blood corpuscles to be from 35 per cent. to 40 per cent. No effects of the inoculation, either local or systemic, were noticed until Jan. 14th, eight days after inoculation, when the hæmatokrit readingsindicated a destruction of the blood corpuscles. At the beginning of the experiment the average per cent. of red corpuscles in the blood was 38.3. On the 8th day of the experiment it had fallen to an average of 31.3 per cent. The rise in temperature in the several animals was very abrupt, rapid and almost simultaneous. It appeared on the 9th and 10th days after inoculation. We call this the primary fever period. The morning temperatures ranged from 103.6° the lowest to 105.6° the highest. This continued from 7 to 9 days and then returned to normal. The destruction of the blood corpuscles continued until on the 13th day of the experiment the average was 27.3 per cent.; on the 15th day it was 23.3 per cent. By the 19th day (Jan. 25th) the fever had ceased, and the blood gained a little, reading an average of 24.5 per cent. See graphic record Fig. 12.

The symptoms of digestive disorder are worthy of mention. During the fever we noticed a lack of relish, though they continued eating. The well ones crowd the sick aside. If the sick ones were fed separately, they consumed a reasonable amount. We noticed among some calves bloating and a disposition to eat quantities of dirt. In some cases there was diarrhœa, and discharging of mucous from the nostrils, muscular weakness, trembling, and a desire to lie down for considerable periods. In no case was bloody or red urine noticed. By the 18th day the fever of the primary reaction had entirely ceased. The lowest average per cent. of blood corpuscles resulting from the primary reaction was 23.1 per cent., which occurred on the 15th day. From the 18th to the 29th day the calves appeared normal. Their appetite improved, and their blood corpuscles increased in numbers. By the 25th day the average per cent. had risen to 31.

The secondary fever period began on the 28th or 29th day. It greatly resembled the primary one in its severity, but differed from it in continuing longer, and in appearing in some animals on the 28th and 29th day, while in others it appeared on the 34th or 35th day. The hæmatokrit readings also show a second fall in the blood corpuscles. This reached its lowest average (21 per cent.) on the 39th day. The lowest individual on that day was 14 per cent., the highest 26 per cent. The secondary reaction must be regarded as due to the activity of the micro-organism in the blood, and not to a reinfection from without. Every calf was examined with great care for ticks until the 90th day, but none were found. Moreover, in the case of the Tod bulls inoculated the previous fall at the Missouri Station there was no possibility of the *secondary reaction* being due to a secondary invasion of the micro-parasites from tick-infestation, as these bulls were in noninfected territory. The secondary fever period did not terminate so abruptly as the primary, but showed a tendency to an occasional high temperature. For instance, we found No. 3 with a temperature of 105° on the morning of the 47th day, and No. 1 with 103.5° on the 54th day, and No. 4 with 103.8° on the 59th day. The calves gained in weight and growth, and their blood showed some improvement, which was slow but steady.

Second inoculation.—2 cc. of defibrinated immune blood was given on the 77th day (March 23d) subcutaneously to all except No. 4. A mild reaction followed in about eleven days; the highest morning temperature found was 104.1°. Calf No. 4 was not given the second dose of 2 cc. with the others, and showed a morning temperature of 104.2° on the 94th day, which was at the same time the other calves were reacting from the second inoculation. No record of blood changes was possible, because the hæmatokrit was out of order at that time. The first reëxamination of the blood occurred on the 106th day

(April 20), at which time the average per cent. was 33.5. The lowest average reading found since that time was 30.5 per cent., which occurred on the 113th and 120th days.

Third inoculation.—On May 18, the 132d day, a third inoculation was made. This consisted of 2 cc. of immune, defibrinated blood given subcutaneously to Nos. 1, 2, 3 and 5. No. 4 received 1 cc. of the same material. (No. 6 had died of blackleg on April 10th.) The reaction from this was very feeble. The highest morning temperatures noticed were: No. 1, May 28th, 102°; No. 2, May 20th and 23d, 103.3°; No. 3, May 25th, 103.4°; No. 4, May 25th, 105.2°; No. 5, May 28th, 103.°

It appears from this that No. 4 showed some reaction, but it was of short duration. The others may be regarded as a very feeble reaction, if any. The hæmatokrit readings do not indicate any appreciable blood destruction, so that we may regard the third injection as producing no effect, and assume that immunity has been attained. These cattle were placed in the pasture April 11th. It remains to be shown that they were exposed to infection. They were frequently examined for ticks.

The cattle were infested with young ticks (B. bovis) on May 5th, May 6th and May 27th. During June and July they carried and matured a few fever ticks. It was not until August

FIG. 10.—GRADE HEIFERS FROM BOONE COUNTY, MISSOURI, USED IN INOCULATION EXPERIMENTS AT THE TEXAS EXPERIMENT STATION.

that any considerable numbers of ticks were carried. There did not seem to be any constitutional disturbance due to their presence, as shown either by the thermometer or by hæmatokrit examinations of the blood. The experiment closed August 31st, 1899. There was no fever among the cattle, nor had there been any. The average per cent. of red blood corpuscles was 33.4 at that time.

KRUGER.—6 HEAD OF REGISTERED HEREFORDS.

This lot consisted of six pure bred Herefords, two bulls and four heifers, whose ages ranged from six to twelve months. They were raised near Emporia, Kansas, and had been shipped south, where they arrived December 7, 1898, at the Carter ranch in Bee county, Texas.

On December 17, 1898, each received 1 cc. of defibrinated blood from the jugular vein of a three-year-old cow on the ranch. This cow had a considerable number of ticks on her at this time. The calves were kept in a dry lot and fed bran and cactus, and watered from a cistern.

January 23, 1899. Saw these calves. All have lost flesh, and there is marked looseness of their bowels. They were evidently in the secondary fever period. The temperatures were: Bull No. 1, 106 degrees; Bull No. 2, 105 degrees; Heifer No. 366, 105.8 degrees; Heifer No. 51, 107 degrees; Heifer No. 525, 106.5 degrees; Heifer No. 57, 104.2 degrees. February 6, 1899. Temperature has fallen to the following: Bull No. 1, 104 degrees; Bull No. 2, 104 degrees; Heifer No. 366, 103.5 degrees; Heifer No. 51, 103 degrees; Heifer No. 52, 102.5 degrees; Heifer No. 57, 104 degrees. June 27, 1899. Saw these cattle. Heifer 366 is evidently pregnant. The cattle appear in good condition.

September 15. Bull No. 1, in good thriving condition. Bnll No. 2; inoculation has caused arrest in development in this calf. He has been thin but is doing well now. The heifers have done well; the oldest one dropped a calf recently. No deaths.

NUTT.—9 HEAD REGISTERED HEREFORDS.

This lot consisted of nine thoroughbred Herefords, raised in Hartley county, Texas, one bull and eight heifers. They arrived by rail at the Nutt ranch in Bee county, Texas, on January 17, 1899.

On January 23, 1899, each received 1 cc. of defibrinated blood from the jugular vein of a two-year-old heifer which had been raised on this ranch, and which had ticks on her at the time. They were fed bran and cactus daily. The inoculation did not cause much disturbance or loss of flesh. Saw these cattle June 27, 1899. All have a considerable number of ticks on them and appear in good flesh. No deaths.

COOK.—55 HEAD OF HEREFORD BULLS AND HEIFERS.

This lot consisted of fifty-five pure bred Herefords, forty-one heifers and fourteen bulls. Their ages ranged from one month to twenty-two months. Eight of them were raised in Illinois, and the remainder in Hartley county, Texas. They were shipped south by rail and reached Bee county, Texas, February 2, 1899. On February 14, each received 1 cc. of defibrinated blood from a two-year-old heifer. These inoculations were made by Dr. Stephens. This lot has done very well. One death occured from inoculation and one from blackleg. June 27, 1899, saw these cattle. All have a considerable number of ticks on them, yet they are all in good condition.

RHEA.—15 HEAD REGISTERED SHORTHORN BULLS AND HEIFERS.

This lot consisted of 13 pure bread Shorthorn heifers, 8 to 15 months old, and two bulls, 10 months old. All had been raised in Missouri. They were shipped south by rail and arrived in Collin county, Texas, April 9, 1899. April 15, each received subcutaneously 1 cc. of defibrinated blood from a six-year-old cow. No serious symptoms developed. June 24th, each received a second inoculation of 1 cc. of blood from the same cow as the first dose. A letter from the owner of these cattle, dated August 29, 1899, says that all of the above cattle have done well and he thinks all the heifers are safe in calf. No deaths.

SUMMARY AND CONCLUSIONS.

The Inoculation Fever and Immunity.—The reports on the Tod cattle, page 24, and the "College Station" lot, page 43, present the important features of the inoculation fever, such as incubation period, duration and severity of the primary and secondary fevers. Attention is called in the graphic record to the sudden fall of the primary fever; this occurs in many cases, and appears to be the critical period. At this time collapse and death may occur in severe cases.

The variation in the percentage of corpuscles during the fever, in comparison with the variation of temperature, is shown in College Station experiment, see chart, page 65. It will be noted that the diminution in corpuscles corresponds closely to the rise of temperature, but continues for a time after the temperature has fallen; and that during the interval between the primary and secondary fever periods, the percentage rises, but falls again on the occurrence of the secondary fever. The table, page 47, gives the hæmatokrit readings for each animal, and the average for the group.

It must always be kept in mind that the inoculation fever is genuine Texas fever, and that in some cases it will take an acute course and cause death in the inoculated animal. A few words in regard to the pathology of Texas fever and how immunity against it is acquired and maintained, will aid in the more intelligent handling of inoculated cattle, both during the course of the inoculation fever and during exposure to the infection at the South.

When a susceptible animal is infested with ticks or is inoculated with infected blood, the micro-parasites thus introduced attack the blood corpuscles and destroy them in large numbers. This is the essential pathological change in this disease. As a result, the oxygen carrying function of the blood is greatly impaired, and a large amount of débris that requires to be eliminated is added to the blood stream.

The recovery from the fever and the maintenance of an immune condition depends upon the ability of the animal, *1st*, *to keep in check the growth of the micro-parasites; 2d*, *to supply new corpuscles as rapidly as they are destroyed; and 3d*, *to remove the waste products promptly.*

In regard to the micro-parasites, it is found that in this disease, unlike most others, they probably never entirely disappear from the blood of an animal that has once been well infected. In animals, however, that gain a high degree of immunity, the blood contains comparatively few of the micro-parasitis. This indicates that by some means their multiplication is inhibited. It is probable that the constant presence of the micro-organisms in the blood has stimulated an increased production of white corpuscles ("phagocytes"), and that by these "soldiers and scavengers" of the blood many of the micro-parasites are destroyed.

As to the regeneration of the red blood corpuscles, this is a function that is carried on normally; for in perfect health the corpuscles are constantly wearing out and must be replaced by new ones. The increased destruction of corpuscles due to the micro-organisms of Texas fever simply stimulates those tissues normally concerned in the production of red corpuscles to greater activity. And it is probable that in all immune Southern cattle and in Northern cattle that become immune, a greater activity of these tissues is maintained throughout life.

In regard to the elaboration and removal of the waste products, resulting from the destruction of the corpuscles—the organs mainly concerned are the spleen, liver, kidneys and bowels. The importance of these organs in removing waste products is readily understood by anyone who has seen at the post-mortem of an animal that has succumbed to an acute case of the fever, the enlarged and softened spleen, the intensely yellow liver clogged with bile., and the claret colored urine. In immune Southern cattle the spleen is somewhat larger than in Northern cattle, which indicates that a more active condition of this organ and probably of the other organs mentioned is maintained throughout life.

The above facts in regard to the pathology of the disease and the way in which immunity is maintained, shows the importance of keeping an animal well nourished and seeing that the eliminative organs are active.

Age of Animal.—The most suitable subjects for inoculation are young cattle from 8 to 12 months old, weighing from 500 lbs. to 800 lbs. They are more easily cared for than younger or older cattle. Calves recently taken from the cow and not well accustomed to a grain and hay diet do not do well; they fall off in flesh and do not regain condition as rapidly as older, well-weaned calves. These younger calves may, however, be safely inoculated if kept with the cow. In August of the present year (1899), thirteen sucking calves, from three to seven months old, were inoculated on a farm near the Missouri Station, and all except one of the smallest calves did well through the inoculation fever. This lot has not yet been exposed to tick infestation. Our experience with animals above 12 months of age is limited. But the fact that in the natural disease older animals are more liable to die, leads to the conclusion that aged bulls and cows can not be immunized as successfully as those of the ages mentioned. The two-year-old Waskom bulls gave good reaction from inoculation, and were sent south in excellent condition. Both, however, had a relapse in the South, and were very sick for a few days, but recovered and have done good service.

Source of Blood for Inoculation.—Blood from two sources has been used; namely, from naturally immune Southern cattle, and from Northern cattle made immune by artificial tick infestation, and blood inoculation. It is probable that the method by which an animal has been made immune can make no difference in the quality of the blood, since the same end is attained—a permanent infection. Recent observations, however, have shown that the blood of different supply animals may differ in virulence; and that it may vary in the same animal from time to time. In work now in progress on cattle that have not yet been sent south, two supply animals have been used, one a Texan cow that has been north since the summer of 1896, but has been kept on infected grounds the past two summers; the other a Northern cow that was inoculated during the past winter and suffered from an acute attack of the fever, but recovered and has carried ticks during the summer and fall without apparent illness. An equal number of cattle have been inoculated from these two supply animals. More severe symptoms have been caused by the blood of the recovered native. This was probably due to the fact that this animal was more grossly invested with ticks during the latter part of the summer and fall than the Texan, and was well infested at the time the blood was used. Blood from the same supply animal was used in midsummer, in doses of 2 to 6 cc. on a few cheap experiment animals without showing as severe symptoms as appeared in others inoculated in the fall with doses of 1 to 3 cc. after the supply animal had become grossly infested with ticks. It is probable that the safest supply animal is one that is thoroughly immune, and in which great variations in virulence of the blood is avoided by keeping free from ticks. The supply animal should be at the place where the inoculations are made and the blood should be used when perfectly fresh.

Size of Dose.—The size of the doze will depend largely upon the degree of virulence of the blood used. If the blood of a tick-infested animal is used, doses of from 1 to 2.5 cc. appear to be sufficiently large. Severe attacks of fever have been produced by the use of 1 cc. of blood from an animal grossly infested with ticks. As the susceptibility of animals varies greatly, it is prudent to give a small initial dose and repeat if necessary. In the Bullock and Rhea inoculations, pages 19, 21, large quantities were given, because the blood could not be used for a day or so after being drawn; and in these cases an antiseptic was added to prevent decomposition; and no doubt many of the Texas fever germs were destroyed.

Diet.—It is important that the inoculated animal should be well nourished, during the inoculation fever and subsequently, since there is a great lowering of the vitality of the animal, due to destruction of the red blood corpuscles. In the experiments at the North, the food has consisted of oats, bran, crushed corn, linseed meal, timothy and clover hay; corn being withheld during the acute stage of the fever. The effort is made to feed in a manner that will maintain a lax condition of the bowels, since the elimination of waste products from the liver is mainly through the bowels. Under the heading of "Inoculation in the South" is given suggestions as to appropriate feeding in that section.

Season of the Year.—Inoculations have been made successfully at all seasons of the year. In the North in midsummer, fall and winter. In the South, in winter and early spring. The most suitable time is at seasons when the animal does not suffer either from extreme heat or cold. If inoculated in the winter the cattle must be well sheltered, as the thinning of the blood resulting from the inoculation fever makes them less resistant to cold. Cattle inoculated in the north should be sent south in December or January, to prevent sudden gross infestation with ticks, as this may bring on a relapse.

Inoculation in the South.—Cattle may be safely inoculated in the South, if they are kept free from the fever ticks until well recovered from the inoculation fever, say about 60 days. This is best done in the winter after several severe frosts. In Texas, this would be about January 1st, as a rule. A suitable place should be prepared some months previously to receive and hold such cattle. To do this, the best plan seems to be to enclose a small pasture the previous June or July and allow no Texas cattle on it after that time. About December 1st, burn off the grass. Very few ticks will survive such measures. Suitable sheds for shelter against storms should be provided. The cattle should be put in the above described enclosure immediately on their arrival, and allowed some time to recover from the effects of their journey; say ten or fifteen days, before being inoculated. They will require some time to adjust themselves to a new diet. It will be seen from the "College Station" experiment, page 44, that this may be done gradually without any marked digestive disturbance. With proper care they become accustomed in a few weeks to eating cotton seed hulls and a mixture of bran, oats and cotton seed meal. They should not have free access to cotton seed in large quantities, as this causes a very troublesome diarrhœa in some calves. In many parts of the State the cactus is abundant. This is a very suitable food for cattle during the inoculation fever, as it contains a mucilaginous substance which has a laxative effect. If this be not available, a few acres planted in oats furnishes an excellent winter pasture.

Relapses.—A few deaths occurred four or five months after the cattle were exposed to infected grounds. In the Green herd ten head died. Among the Tod bulls, two of the oldest animals died, and another of the large ones was sick. A few of the smaller ones were a little off. Both of the Waskom two-year-old bulls were sick, but recovered.

All of the bulls had ripened a few ticks without showing any fever. The Tod bulls had been well infested, but at the time of death were carrying only a few ticks. It appears that in the Green herd a number of the calves did not pick up many ticks until well along in the summer, when they became grossly infested. In this case, the long interval between inoculation and gross infestation may account for the result. An additional inoculation or several mild tick infestations earlier in the season might have given the necessary stimulation to effect immunity. In this case it is not known whether the bulls that died had reacted well from the inoculation, as individual records of this lot were not made.

In the case of the Tod and Waskom bulls, the owners think that the relapses were preventable. Capt. Tod says: "I have now no doubt but over excitement, over service, and over heating, aggravated by fighting a good deal, was the cause of their succumbing," and that this result could have been avoided by putting these bulls with a restricted number of cows, each in a small pasture where they would not have had the trying conditions of worrying with other bulls. "Three others that showed signs of relapse were taken away from the cows for ten days or more and nursed up, then turned back to service. They have been well ever since." These relapses show that it probably requires a full season at the south before northern bulls acquire that degree of immunity possessed by Southern raised animals. Care should therefore be taken during the first season to avoid all conditions that tend to lessen the vitality of the animal. With proper care but few bulls that have reacted from the inoculation will die, and they will usually give good service.

Effects on Reproduction.—No evil effects of inoculation on the powers of reproduction have been observed in these experiments.

Bullock.—"The bulls have done good service."

Rhea.—"All the heifers," first inoculated, "produced good healthy calves the following spring and another lot appear to be pregnant five months after inoculation."

Tod.—"The bulls have done good service. I estimate that they have sired 200 calves."

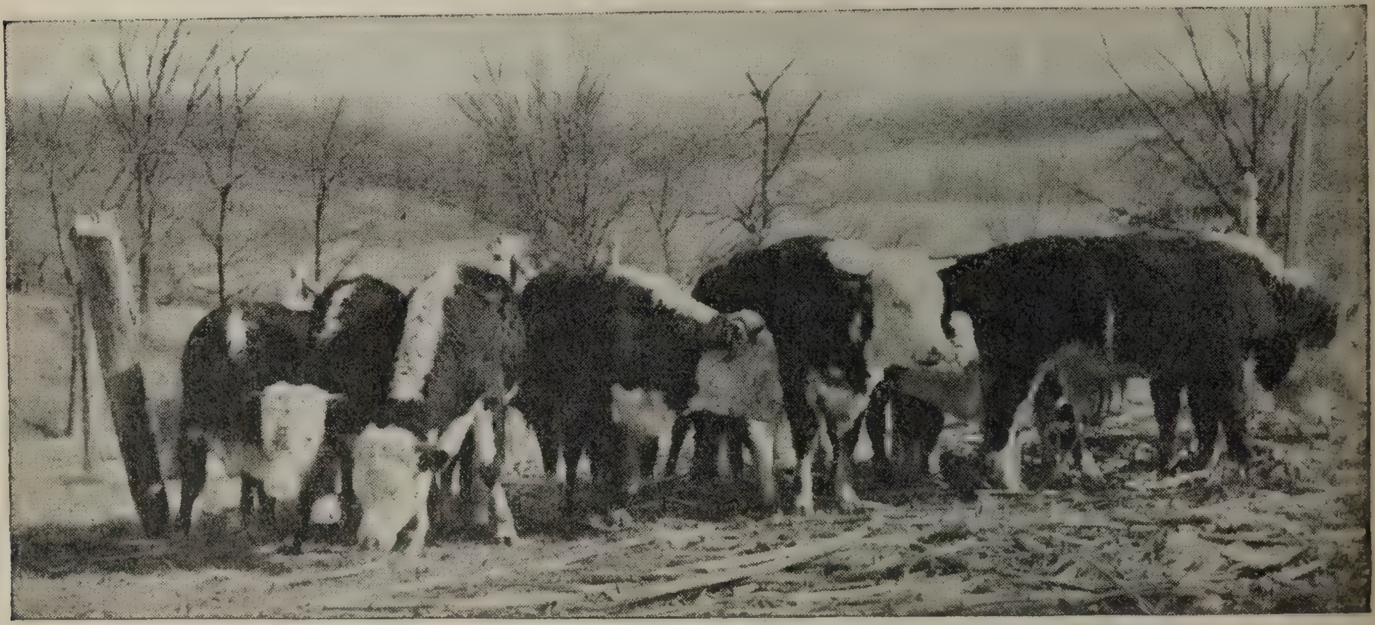


FIG. II.—HEREFORD BULLS FROM 8 TO 12 MONTHS OLD, INOCULATED AT THE MISSOURI EXPERIMENT STATION AND EXPOSED TO THE FEVER IN TEXAS ONE YEAR. NO LOSSES.

Waskom.—Bulls run daily with cows and are doing service.

College Station.—All the heifers appear to be pregnant.

Kruger.—The oldest heifer produced a good calf 9 months after inoculation.

We have but little data as to the dangers of abortion following inoculation. Only one case has occurred in our experiments. This one in a Hereford heifer recently inoculated at the Missouri Experiment Station. On this point Dr. J. S. Hunt (Pathologist to the Department of Agriculture, Queensland, in Annual Report for 1897–98, page 87), says: "The risk is greater in cows that are in calf; abortion frequently follows inoculation when considerable fever occurs."

DOUBLE NEURECTOMY FOR SPAVIN.

By Adolph Eichhorn, D. V. S., House Surgeon, American Veterinary Hospital, New York.

There is hardly a veterinarian who has not met cases of lameness caused by bony spavins, which resisted the most heroic treatment, beginning with a liniment, followed by blistering, firing and blistering, or even the perforating iron, and being in every way unsatisfactory to both owner and veterinarian. For the last few months foreign veterinary literature has contained many articles, reports and results of an operation called the "Double Neurectomy for Spavin," and in which I took a great deal of interest. Speaking about it to several veterinarians, I have been requested to describe this operation, which was introduced by Prof. Bosi, of the Bologna Veterinary School, and whose successes surprised the profession.

The operation of neurectomy in veterinary surgery is by far of much greater importance than in human surgery, for in the latter this operation is only in very rare instances indicated, as in cases of neuralgia. But in the horse the indications are much more numerous; taking in consideration the chronic incurable diseased conditions of the bones, ligaments, tendons and joints of the lower extremities, which, by producing continual pain, interfere with the usefulness of the animal.

The "Double Neurectomy for Spavin," as has been reported by veterinarians of foreign countries, has been successful in about 90% of cases, where all other treatment failed. This evidence ought to be enough to consider it worthy of a trial, and to make ourselves acquainted with the operation, which requires some skill and practice, but which will not prove an obstacle, as this is a gift to many of our American colleagues. It is certainly advisable to try this operation on cadavers, thereby getting the exact course of the nerves, and enabling ourselves to be able to make as small an incision as possible on the living subject.

After long and tedious investigations, Bosi came to the conclusion that the deep branch of the "nervous peroneus" plays an important part in the innervation of the hock joint, and this makes the conceivably bad results, following the tibial neurectomy alone. The operation, as Bosi recommends it, consists in the neurectomy of the nervous tibialis and the nervous peroneus at the same time, which, as he claims, will be followed by complete recovery in all cases of spavin, even in the most pronounced types, in a comparatively short time.

I will try to give a clear and brief description of this operation, referring to Major Schwendimann's article on this subject in the *Schweitzer Archiv für Thierheilrunde*, and which I will follow in both modes of operation and treatment.

Modus operandi.—The horse is laid on the side on which the operation is to be performed, and the upper hind leg is drawn forward and secured to the corresponding front leg. The field of operation is then thoroughly washed with soap and water, disinfected and carefully shaved. After the animal is completely under anæsthesia, and a strong ligature applied around the leg, the operation for the neurectomy of the nervous tibialis may be begun. This large nerve is easily found on the inner side of the leg, about one hand from the point of the hock, and 3 cm. from the tendo-Achilles. It lies right under the terminal branch of the saphena artery and the plantar vein, imbedded in a loose fat cushion. An excellent point to be used in finding this nerve is the named extended vein, which is often caught by the blunt hook, and under which it is then easy to get the nerve, and by separating the loose tissue with the aid of two forceps, all that is left to do is to pick up the nerve with a blunt hook and enucleate a piece of 2-3 cm. with the aid of a pair of curved scissors. The blood is then pressed out, the wound closed by sutures, and covered with cotton.

The irrigation or washing of the wound with disinfectants and especially the use of powders is to be avoided, as this measure will only destroy all hope of healing by first intention. After this is done the animal is turned on the other side; the new field of operation cleaned and disinfected as before; the ligature removed, as it is of no benefit here, and is annoying to the operator. Following this procedure we go on with the operation to perform neurectomy on the deep branch of the nervous peroneus. This nerve is situated on the lateral side of the leg and is to be looked for at the same height with the nervous tibialis. The fine nerve lies here between the long extensor of the foot (musc. extensor dig. longus) and the lateral extensor of the foot (musc. peroneus longus), right over the musc. tibialis anticus. According to the anatomical situation of the nerve, we make the incision on the posterior border of the long extensor of the foot, about three inches in length, and after the separation of the strong fascia the bulging muscle is reached, which is grasped by a strong retractor, pulled downwards and outwards, the loose connective tissue then separated with the aid of a scalpel or forceps, after which the fine, white thread-like nerve makes its appearance. After performing the neurectomy on this nerve, the skin is sutured and the wound is to be covered loosely with cotton. This should be left alone for about 30 minutes, after which the blood should be pressed out and the wound rubbed with airol paste:

℞ Airoli,
Glycerini,
Mucilag. gum arab., āā 5.00,
Boli, 10.00,
M. Unguentum.

The use of the ointment is not advisable immediately after the closing of the wound, as it would burst, due to the oozing of the blood, and therefore not proving satisfactory for the purpose.

Major Schwendimann obtained with this treatment in the last ten cases healing by first intention, an object for which effort should be made under all conditions, as otherwise the healing process is considerably retarded by the formation of a muscular hernia with exuberant granulations. Also, it is not advisable, and still more harmful as is practiced by many, to trot the horse as soon as the operation is over, to prove the disappearance of the lameness. The symptoms in the first 10 to 14 days are not very encouraging, as often considerable lameness follows the operation, similar to those which are due to severe punctured wounds of the foot, and beside this, symptoms of paralysis of the extensors make their appearance, which is characterized by frequent knuckling of the fetlock. But all these symptoms disappear after the healing of the wound by first intention. This, as a general rule, takes place at the end of the third week, when slight exercise may be given, or the horse may be used for light work. After the fourth week, generally, the lameness disappears entirely.

Major Schwendimann reports 15 cases in which he performed the operation of double neurectomy, five of which were private cases, while the rest belonged to the Swiss army, and in all his cases he had a good opportunity to observe the results, which were in fact very satisfactory. Of the 15 horses operated upon, 14 were entirely relieved from lameness without being followed by any bad results. In the one unsatisfactory case, he thinks it was due to the condition in which the operation was performed, as the nervous tibialis was severed below the bifurcation, whereby only one branch was separated. As the horses were under observation for a considerable length of time, no bad results could be detected in any way, and as the horses were used continually for hard and tedious work in the manœuvres, it proves the success of this operation.

Analogous to these reports are those of Prof. J. Hirzel, of

Zurich, which are very satisfactory in regard to curing the lameness from spavin. He reports 26 cases, of which 24 were successful.

Conclusions.—These results, combined with many other satisfactory reports that have been published in different journals, prove the operation as a worthy remedy, especially in cases of spavin where all other treatment proves unsuccessful.

It is certainly essential to observe a liable sequel to this operation, as it is not excluded—that after the lapse of a certain time, trophic disturbances may make their appearance; further, it is questionable, as to the leg, if this condition will not cause an atrophy, and thereby weakening it in a certain way, which after hard work would cause interference, with its bad results. But Schwendimann and Fröhner state they could never observe anything of this kind.

But while these reports have been proven to be so successful, it is only advisable to resort to this operation when all the other treatment fails. There is among veterinarians a certain amount of prejudice in regard to neurectomy, so that all good suggestions and advice in regard to them are not considered to be of any value. But when we think that to-day, the first and general indication for treatment is the economic suitability, we have and we ought to consider the neurectomies as the most valuable operation in the line of veterinary surgery.

There being two cases in the American Veterinary Hospital at the present time upon which this operation will be performed, it will give me great pleasure to report the results in minute detail to the readers of the REVIEW, to prove the value of this operation.

ELECTROLYSIS.

BY DR. J. J. DRASKY, CRETE, NEB.

Read before the Nebraska State Veterinary Medical Association, February, 1900.

The subject assigned me is one that requires a paper of some length, and therefore I hope you will bear with me if it becomes monotonous.

Before I begin I wish it understood that I do not claim originality for all I will say, as I am indebted for most herein contained to Dr. John Butler, a gentleman who is recognized authority. In order to make things comprehensible I am compelled to quote a short chapter out of his text-book and then I will try and give you the results of my experience in electrolysis.

In my paper some years ago I attempted to bring the use of electricity before the veterinary profession, but as yet I have heard of no one having made use of it.

Dr. Butler says that: "When two or more needles connected with the poles of an apparatus generating a galvanic current of sufficient intensity to overcome the resistance of the circuit are inserted into living animal tissue, the following results take place, viz., the blood vessels of the part become dilated and engorged, producing intense hyperæmia, and the absorbents are stimulated to increased activity. In short applications with weak currents the effect ends here, but should the action of the current be continued, and the tension and quantity slightly increased, the albumen of the part becomes coagulated and with a still stronger current the water of the tissues becomes decomposed, the oxygen becomes attracted towards the positive pole, and the hydrogen towards the negative to find vent, at which it bubbles violently through the intervening structures, tearing fibre of muscle, separating cells, nuclei and filaments, etc., and mechanically destroying anything that may oppose its egress. The salts of the tissues are resolved into their contained acids and alkalies, the acids forming around the positive pole, and the alkalies around the negative, where both act as powerful escharotics, producing sloughing. Thus, the tissue acted upon is made to destroy itself through its own contained pigments. The operation thus described may practically be divided into four stages:

"1st. The dynamic or absorbent stage, corresponding in what is called by Remak electro-catalysis.

"2d. The coagulating stage.

" 3d. The escharotic stage, or the stage of complete and ultimate electrolysis. We use the first stage only in the treatment of serous effusions, strictures, watery cysts, etc. The second stage in the treatment of aneurism, varicose veins, hæmorrhoids, nævus, and other diseases where coagulation of the contained blood is desired, and where the production of the slough is not intended ; the third and fourth stages in growths of a malignant nature, fibrous tumors, polypi, fatty tumors, and in any case where a total or partial destruction of the part may be necessary. In the operation the greatest amount of effect produced is in the immediate vicinity of the needles ; in very mild currents the cauterizing effect is only produced in the parts directly in contact with the needles ; with strong currents, the size of the slough depends upon the structure of the tissue, the amount of water and salts it contains, the size of the needle, and the duration of the application. The eschar, produced by the positive pole, differs essentially from that caused by the negative inasmuch as the ulcer resulting from the separation of the slough of the first leaves a cicatrix which heals by contraction, like that produced by an acid caustic. No such results take place from the action of the negative pole ; on the contrary, the cicatrix is soft and pliable.

" It is, of course, entirely impossible to obtain purely the results of any one of these stages *per se ;* for instance, in electropuncture of an ovarian cyst, the result aimed at is to produce absorption, and so act on the internal part of the cyst as to destroy its secreting powers and to prevent refilling. Electrolysis of the watery parts of the contents must and does take place in a greater or less degree, but it forms no part of the desired effect, and so in operating upon aneurism, or nævus, thorough coagulation of the blood is the only thing desired. Electropuncture as thus described, is presumed to have been performed with needles made of nonoxidizable materials. Should the needle of the positive pole be made of materials capable of being acted upon by the acids set free at this point, the results are modified in a great degree. For example, suppose the positive needle should be made of iron, the needle becomes dissolved by the acids set free, and the phosphate, sulphate, and chloride of iron are formed, principally the chloride. From this fact we would infer that iron needles would be useful when coagulation of the blood is the result aimed at, and there is no doubt they assist the accomplishment of such a result to a considerable extent. Suppose we use zinc needles, we have chloride of zinc formed, which is a powerful escharotic, and assists materially in hastening the destruction of morbid growths. I have used these needles with a weak galvanic current and long applications, for the destruction of malignant tumors, and believe it to be in many cases the most appropriate treatment. The diseased tissue is chemically dissolved under the action of the current, which at the same time influences the morbid nervous impulse which caused the secretion of the mistaken cells in the first place, and the electro-chemical action of the already disintegrating structure on the needle forms, molecule by molecule, one of the most powerful escharotics, which destroys, molecule by molecule, any of the diseased mass that may possibly escape the action of the current, and not only that, but it acts as a powerful antiseptic on the slough that otherwise might become offensive before separation had time to take place, and still further it certainly hastens the separation. Another advantage of the operation is that it is comparatively painless, in some cases entirely so; electrolysis of the tissue takes place so slowly that the chloride of zinc is also formed slowly, and immediately uniting with the tissue that is already half numbed by the action of the current, very little pain if any is produced. In fact the strength of the current can be so arranged that no pain is caused. In my opinion, the electro-chemical treatment far surpasses ordinary electrolysis in certain cases, where total destruction of the part, in as short a time as possible, and with a minimum amount of pain, is desired; still a slight eschar around the uninsulated part of the needle is unavoidable.

"In such operation it behooves us to make this latter as slight as possible, which can be done by diminishing the amount or quantity of current used; that is to say, in any operation requiring a cauterizing effect a large quantity is required; in operations where we simply desire to produce the absorbent or electro-catalytic effect, we require tension but small quantity.

"We will, for the present, dismiss this question of electro-chemical treatment, and return once more to the consideration of the effects of the current as applied with unoxidizable material.

"So far we have considered this operation only as performed by the use of needles introduced into the tissues. The same effect in a lesser degree can be obtained by external application of metallic and other rheophores to the skin, mucous membrane, or denuded tissue. And when we use the current for the sake of its lesser effects, it is frequently applied in this manner.

"One of the greatest difficulties in the technique of electrolysis, so called, by the tyro electro-therapeutists, is to avoid doing too much. The operator must have a battery provided with a Brenner's, or other equally accurate rheostat, constant and reliable, capable of giving every variation of quantity and intensity of current. He must be quite familiar with its action, and with the effect each vibration is capable of producing on living animal tissue. He must also be able to control the electro-motive force to the exact point capable of producing the effect desired, and no more. For instance, what could be more deplorable than that sloughing of the milk duct should take place when the effect intended to be produced is merely the absorption of a stricture, or in operating on a nævus on the face of a young lady, that an eschar should be caused when we merely aim at coagulation of the morbid growth? And yet the slightest overstepping of a scarcely defined boundary will cause just such a result. Better by far to do too little than too much. It is impossible to state with precision the exact quantity and intensity of current to be used, as that depends upon the size of the growth, the density, and the amount of the watery and saline ingredients contained. This must be learned entirely by experience. We will first take up stricture of the milk duct for consideration.

"In the treatment of stricture of the milk duct the object in view is the stimulation of the absorbents to such an extent, that the fibrous tissue may be absorbed. We must be very careful, therefore, that the current be rather too weak than too strong.

"The *modus operandi* is as follows: We introduce into the milk duct an olive made of platinum or silver, or copper platinum preferred, at its posterior extremity a knitting needle is attached, this needle is insulated throughout its whole extent, leaving only the olive exposed. It is desirable that three olives of various sizes be at hand, first introducing the smallest of the three and when a sufficient amount of the stricture is absorbed, the next size is introduced and so on.

"It usually requires from three to five applications before the stricture is completely removed. It is well to remember that too much tension is productive of harm and therefore the necessity of different sized olives. In order to operate, cast and secure the animal firmly, attach to the negative pole the electrode at which end the olive is attached; the positive pole has a broad sponge rheophore attached to it which is moistened with salt and water, and may be placed on any portion of the body. The electrode from the negative pole is then soaped, not oiled (oil being a non-conductor), to facilitate its introduction. The broad sponge rheophore being in position, you proceed to introduce the olive and very gently pass it up the duct until you have reached the obstruction. Here you stop and hold the olive in contact with the stricture, and in time you will find that the channel has dilated and you are able to pass through without any apparent resistance. It must be remembered that the current must not be too strong. In a paper written by me some years ago you will notice that I have advocated a current of a seven cell battery, this, however, I find is no criterion to go by, for the age of the fluid greatly influences the strength of the current; the best way to determine the desired strength is to apply the olive to the tongue, and if a slight tingling sensation be felt, I would regard the strength sufficient, it matters not how many cell current be used."

Like most country practitioners, I am somewhat negligent in keeping record of my cases, but since Dr. Peters informed me last spring that I would be called upon by our association to read a paper of this character, I kept a record of the cases that came before me in the past summer. Out of twelve cases treated, five required but three applications of electricity ; three were treated five times before a complete cure was effected ; one case that was treated, I first operated on with a teatslitter (my battery not being in working condition). The stricture being in the superior portion of the duct, I thought maybe this would be sufficient, but to my disappointment I found that the irritation thus produced caused almost complete obliteration of the passage. Having my battery newly charged, I proceeded at once to operate, and here again another mistake was made, the current used was altogether too strong, and the case was rather aggravated than relieved. I noticed that on withdrawing the electrode a slight amount of blood was noticeable ; the cow for some time had to be milked with a syphon. The next time I operated I used only a three-cell current ; have now operated five times and after each operation a decided improvement is noticeable. Two other cases I have operated upon resulted in a complete failure, and post-mortem examination revealed extensive tuberculosis of the udders.

I hope that you will pardon me if I make my paper more elaborate and take up the treatment of new growths ; my experience, however, is limited, but my good success justifies me in mentioning some of the interesting cases that I have treated.

New growths, if superficial, and a total and rapid destruction be desired, may be treated by what is termed the fourth stage of electro-puncture, or complete electrolysis, by which a slough of the entire growth is produced and left to separate. In such cases we may introduce a small insulated needle in several parts of the growth, using a very strong current, possibly of thirty cells. I use also an electrode in the shape of the feather or flat electrode, similar to that used on the different thermo-cauteries. So far I have treated but three cases in this way, one was that of a jack, on the anterior portion of the hock joint, of which small new growths appeared, varying in size from the end of a lead pencil to the size of a dollar. I have removed these growths with a knife, treated the jack constitutionally and used all imaginable caustics, from arsenic down; anything but the desired effect was obtained. The next was that of a jinny, where the tumor, the size of a child's head, in the same locality, I removed and treated with actual cautery, without any avail. As the farmer seemed to have more faith and courage than myself, and would return periodically for me to repeat the old process, I became desperate and was ready to use anything that would kill or cure. I secured a battery of thirty-cell current; had the above described instruments made, and after removing a slight amount of the new growth I applied the electricity for thirty minutes; gave instructions that the jinny be returned in two weeks. Upon her return I found considerable slough, which I washed with peroxide of hydrogen, and found that the growth had diminished to a great extent. I reapplied the current, and after three operations the result was a complete cure. Thus encouraged, I at once proceeded to treat the hated jack, for at this time he had been two years under my care. I would succeed in healing the ulcers almost completely, when all at once they would become aggravated and spread to their former size. I had the jack brought in and proceeded at once, using the current of the same strength as used upon the jinny, at intervals of one week, and when he came back for the fifth application it was found that no further treatment was necessary. The third and the last case was that of grease in its grapy stage. I applied the electricity, puncturing the grapes, and within a week's time I was able to remove most of the diseased tissue with scarcely any loss of blood. I then used the broad electrode in four different applications, after which the horse was cured and discharged.

OVARIOTOMY IN THE DOMESTIC ANIMALS.

PRESENTED TO CORNELL UNIVERSITY BY CHARLES HENRY JEWELL,
FOR THE DEGREE OF DOCTOR OF VETERINARY MEDICINE,
JUNE, 1900.

Under the Direction of W. L. Williams, Prof. of Surgery, at N. Y. State Veterinary College to whom acknowledgment for valuable assistance is given.

History.—Ovariotomy of domesticated animals is one of the oldest operations in veterinary surgery, it having been performed contemporaneously with the operation in women. Ovariotomy in both is described by ancient writers, also by modern authors. It is mentioned by Aristotle (4th century B. C.), Varro (1st century B. C.) and Pliny (1st century A. D.). Nothing was written or done in this line during the middle ages. The more modern writings on this subject date back to the 17th century, when Bartholdi in 1662 speaks of spaying mares and cows through the flank, which operation was then of frequent occurrence in Denmark. The operation in women was revived by Morand, a Frenchman, in 1697, who was then secretary of the Paris Academy of Surgery. At the beginning of the present century ovariotomy in both was revived on the European continent, and the operation in women was introduced in America by Dr. Ephraim McDowell, of Danville, Kentucky. Dr. Nathan Smith, who like Dr. McDowell, had studied at Edinburgh, and not knowing of the operations of the former, also successfully operated in 1821, but the operation did not obtain general recognition until 1824, when a paper was published by Dr. Luzers in the Edinburgh *Medical and Surgical Journal.* Thomas Winn, a Louisiana farmer, in 1813 was the first in America to perform ovariotomy in the domestic animals. He endeavored to demonstrate the influence of ovariotomy on the increase of milk secretion by spaying several of his cows through the flank. The operation was not considered successful until Charlier in 1850 introduced his vaginal method, for which he devised certain complicated instruments which he deemed desirable. Colin in 1858 simplified this method by showing that Charlier's vaginal dilator was unnecessary.

The results of Winn and others of spaying through the flank made little impression on veterinary surgery; but since the introduction of the vaginal method the operation has become well established. At one time the operation was considered very dangerous to both mare and cow, owing to the extreme sensitiveness of the peritoneum to infection, but since the era of antisepsis, abdominal operations are made feasible with but little fear for the welfare of the patient. Experience has taught us that the sensibility of the peritoneum is not of such importance as was formerly believed if strict asepsis is observed in penetrating the cavity.

Object.—The object of spaying varies with species or strains; for instance, in the mare the operation would be indicated in those which have an abnormal desire for the male, seemingly irresistible. Such are called nymphomaniacs. They are very irritable during the periods of œstrum, which are frequent, excessive and prolonged. When approached, such animals lay back their ears, switch their tails, and spasmodically eject small quantities of light colored, slimy urine; they stamp their feet, rub their hind quarters against the stall, attempt to bite, strike, kick, and when hitched will often refuse to do the work demanded. Many have the habit of catching the rein beneath the tail and holding it firmly. When served by the stallion they generally fail to breed. They are, as a rule, in poor condition, and prove a source of annoyance to their owners.

The object of the operation in cows is, first, in case of the nymphomaniac, which is a great source of annoyance in the herd, by jumping others, breaking out of enclosures, producing but little milk and seldom becoming pregnant, also maintaining a lean condition. Secondly, it is asserted that the operation will not only increase the quantity of milk, but the quality as well. Third, the effect on beef production is very marked, the animal taking on fat in increased amount and well diffused throughout the tissues. The beef is said to equal that of a steer. While such are being prepared for the slaughter, a good flow of milk will be maintained, making it doubly profitable in fattening such animals, which owners are desirous of selling at a gain. They may be milked until fit for the slaughter, and at the same time be allowed to run at pasture in company with the male without danger of becoming pregnant, which is often desirable to avoid.

It is of value in the sow, owing to the increased fattening quality of such. It is a well-known fact that sows which are in "heat" take on fat slowly, owing to the excitability of the animal at such periods.

Bitches subjected to the operation make more intelligent and docile animals, and the owner is not subjected to the annoyance of the "rutting" season. The animals remain at home and are more attentive to duties, thereby reducing the losses to sheep owners, caused by roaming dogs.

Cats after operating become more docile, grow larger and are not inclined to roaming from home.

Time and Conditions Favorable to Operating.—The mare should not be in foal, nor infected with any contagious disease, or inflammatory disorder, especially of the intestines. Dairy cows should be operated upon after fourth or fifth calving, if desirous of milking for a considerable length of time. She should not be pregnant, nor suffering from any infectious disorder, and the milk secretion should be at full height. It is better that all animals be prepared for the operation by withholding full rations the day previous and not feeding on the day of spaying.

Surgical Anatomy.—The vagina is situated in the pelvic cavity with the rectum above and bladder below. Its internal surface presents longitudinal folds which permit fre edilatation; at its anterior extremity is situated the cervix of the uterus, giving to the fingers the sensation of a hard and firm projection, in the centre of which is a small opening generally impenetrable by the finger, in the cow, and radiating from this are the folds of the mucous membrane. The uterus continuing forward from the cervix, is situated in the sub-lumbar region with its posterior extremity at the inlet of the pelvic cavity;

its body is short and divides anteriorly into two cornu or horns. In the mare these pass outwards at right angles toward the flank, and in the cow forward, downwards and backwards. In both they are connected to the ovary by the utero-ovarian ligament and communicate with the ovary by the fallopian tubes and fimbria. The uterus and cornua give attachment to the broad ligaments, which are folds of the peritoneum, originating from the lumbar region and descending toward the uterus to fix themselves upon the sides of the superior face of the body and cornua in the mare and to the sides of the inferior face in the cow.

The anterior borders of the ligaments are free and give support to the oviducts and ovaries. Between its layers are the utero-ovarian artery and vein, lymph-vessels and nerves, which pass to and from the ovary. The ovaries, two small ovoid bodies, are situated on the superior internal face of the broad ligament in the mare, and the inferior internal face in the cow. The round ligament, which often aids in locating the ovary, springs from the inguinal canal and passes to the cornu, attaching itself near the extremity. This is round, hard and fibrous, corresponding to the gubernaculum testis of the male. In the smaller animals the vagina is of no special importance to the operation, only aiding in locating the cornua. The cornua in the bitch and cat are long, slender and straight, extending from the anterior entrance of the pelvis along the sub-lumbar region to which they are suspended by the broad ligaments. In the pig the uterine cornua are long and tortuous, extending from the anterior entrance of the pelvic cavity a short distance forward, and are suspended from the sub-lumbar region by the broad ligament. They float among and resemble the small intestines.

Modes of Operating.—In the cow and mare spaying is done almost exclusively through the vagina. Young heifers would necessarily have to be spayed by the flank method owing to the small size of the vagina. Bitches, cats and pigs should be operated on through the flank or median line; the danger of hernia being greater in the latter manner, unless great precaution be taken in suturing the abdominal parietes.

Necessary Instruments and Their Preparation.—For the mare a long ecraseur, preferably worked by a spring and ratchet (Chassaignac's), a knife with a metallic handle and concealed blade, and it is well to have a uterine dilator, although not often necessary. For the cow the uterine dilator, pair of long curved scissors and a metallic handle knife with concealed blade. For the bitch, cat and pig a scalpel, artery forceps for emergency, needle and suturing material (silk or catgut) are required.

All instruments should be subjected to twenty minutes boiling in water to which sodi bicarbonate has been added.

Methods of Securing Animals for Operating.—The cow may be fastened in a narrow stall or stocks, if such be convenient. A rudely prepared stocks will suffice, which any novice can build. The animal should be secured firmly and straps or boards placed beneath the abdomen and thorax to prevent lying down; it is well to have the hind legs secured to guard against kicking, should have a strap or rope drawn tightly over the back to prevent arching and straining. The mare should be confined in the stocks with strap over the back, two underneath, one beneath the thorax and the other under the abdomen. Each foot should be securely fastened with ropes, the tail drawn tightly and secured above the croup and have an assistant hold a twitch upon the animal's nose.

The securing of the smaller animals is simple. Place the animal outstretched upon an inclined surface with the side upward on which the incision is to be made, the mouth being previously muzzled if a dog or cat. The legs should be secured with small ropes and fully extended. An assistant should hold the animal firmly.

Preparation of the Operating Field.—Immediately prior to the operation the rectum should be evacuated, if the animal be a cow or mare, and the external genitals and surrounding parts thoroughly washed with soap and water; then disinfect the same with some reliable agent. The vagina should be washed out thoroughly with boiled normal salt solution (.6 per cent.), cooled to a temperature of 100°F. The smaller animals are prepared by thoroughly washing the operating field, which is the flank or median line directly in front of the pubis; this done the part is shaved and disinfected.

Precautions of the Operator in Regard to the Arms, Hands and Clothing.—The hands of the operator should be scrupulously clean, finger nails short and arms thoroughly disinfected. Too much stress can not be laid on strict asepsis in all operations pertaining to the abdominal cavity, for on this depends the results. The operator's suit should be of some light easily washed material and strictly clean.

The Operation in the Cow.—First introduce the right hand carrying the knife, then with the left introduce the vaginal dilator, placing the small anterior projection into the os, press downwards and forward until the walls of the vagina are tense, then with the right hand locate the cervix. Choose a place about two inches back and above in the median line, then expose the knife, place the edge upward, and make a drawing cut about two inches in length and deep enough to pass entirely through the vaginal walls, remove the knife and dilator, pass the hand into the vagina, locate the incision and insert one or more fingers, locate the body and cornua, follow the latter to their extremities, and, coming to the broad ligaments, to which hanging freely we find the ovaries—two small, hard ovoid bodies about three-fourths to one and a quarter inches in length by one-half to three-fourths inches in diameter. The ovaries lie near the median line just in front of the brim of the pubis and a little below. Having secured the ovary draw it out through the incision into the vagina, then with the other hand introduce the curved scissors and clip off the organ, making sure to remove all the glandular structure. It is preferable to use the right hand for the left ovary and *vice versa.*

The Operation in the Mare.—In the mare the operator introduces the right hand into the vagina, determines the cervix and locating a position in the median line immediately above the os, awaits an opportunity when the animal is not straining and the vagina becomes dilated before making the incision. After exposing the blade place the sharp edge upward and push directly forward parallel with the body of the uterus, making sure that the incision includes the muscular walls of the vagina and the overlying serous coat; remove the knife, pass one or more fingers through the opening and gradually enlarge it so as to pass the hand into the abdominal cavity. In case the vagina does not dilate, it is then desirable to introduce the vaginal dilator, place it in the cervix, push forward and downward and make the incision as described above.

After the opening is made pass the hand into the abdominal cavity, then locate the body of the uterus, trace it to the cornua, continue to the extremities of these, and there will be recognized the broad ligaments by which the ovaries are freely suspended, lying on either side well toward the flank. They are hard ovoid bodies about one and a half to two inches in length by one to one and a quarter inches in diameter, varying in different animals of the same species, being largest at the period of sexual maturity. Having located and determined the ovaries, the next step is the introduction of the ecraseur, and passing the chain over the organ, draw up the slack and with the free hand proceed to crush off the gland, in the meantime holding fast to the ovary which is being removed until it is safely brought to the exterior.

The second is secured and removed in the same manner. It is better to introduce the right hand with the instrument for the removal of the left ovary, and *vice versa* for the right, but both may be removed with the same hand.

The operation in the bitch and cat is alike. For the flank operation the animal is secured upon the right side on an inclining surface. The incision is made through the left flank from a point about one inch from the ventral border of the lumbar muscles and just in front of the external angle of the ilium, extending downward toward the median line about one and a half inches, pass the knife through the muscles of the flank (the external and internal oblique) into the abdominal cavity. The opening should be large enough to freely admit one finger, which should be gently passed upwards and backwards along the abdominal walls until coming upon the horn of the uterus; secure this, draw it out through the opening, then trace it forward to the ovary, which can be determined by its ovoid glandular structure, tear it loose from the abdominal wall by means of the finger and bring it out through the incision. Then pick up the other cornua, and using gentle tension trace it to the ovary; when located tear it loose by catching it between the end of the finger and the abdominal wall, draw it out and tear away several inches of cornu with each ovary, replace any omentum or abdominal organs which may protrude, close the cutaneous wound with continuous catgut by suture and wash with sterilized water.

Should the animal be a young puppy it is desirable to operate through the median line, securing the ovaries in the same manner as by the flank. In operating in this way the abdominal muscles should always be sutured to prevent hernia, whereas in the flank it is only necessary to suture through the skin. In the cat it is advisable to suture both the abdominal muscles and the skin.

(*To be continued.*)

REPORTS OF CASES.

"*Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.*"

VOLVULUS.

By W. L. West, V.S., Belfast, Me.

June 21st I was called to see a thoroughbred Jersey heifer which the owner said was not quite right, presenting the following symptoms: Dull, decubitus; complete anorexia; pulse 100 and thready; temperature 100° F., and owner said he did not know of her having passed any fæces for 24 hours;

urine normal in color; but lessened in volume; not examined chemically. Diagnosis reserved. Treatment: Mag. sulph., 480, aqua, 1 litre, with enemas containing magnesia sulph., 60, every two hours.

June 22d—Pulse, 110; temperature, 100; decubitus; anorexia; drinks some; no pain; no tenderness on pressure; no tympanitis; no intestinal murmur. There was some dark, viscid, tarry blood exuding from the anus. Diagnosis, intestinal obstruction, probably volvulus. Prognosis, death.

June 23—Symptoms same; temperature, 100; no pain.

June 24—Symptoms same; temperature, 100; no pain.

June 25—Symptoms same; temperature, 100; no pain.

June 26—Animal died at 4 A.M., after the cervical muscles of one side had drawn the head around to that side.

Post-mortem (four hours after death).—Stomach full of undigested food and liquids, normal in appearance. Heart, lungs, liver and spleen normal. Kidneys slightly congested. A loop of the middle portion of the ilium had slipped through a hole in the mesentery and twisted upon itself, thus making a complete strangulation.

Now, this may be a very ordinary case to others, but there are a few things about it I would like explained. (1) Why did this animal have a persistent temperature of 100° F? (2) Why was there no pain or tympanitis? (3) What was the immediate cause of death?

We usually expect in acute inflammation a sharp rise in temperature, and I think the reason we did not have it in this case was due (1) to the toxines which were absorbed, inhibiting the heat producing centre. (2) The pain in intestinal inflammations is either due to chemical changes caused by the action of septic organisms or the products upon the nerves, or by pressure upon the nerve terminals by the distention due to fermentation. In this case I think the animal was nearly free from septic organisms, and gasogenic ones as well, hence no pain and no meteorism. (3) I think the direct cause of death was absorption of toxines generated by germs enabled to proliferate faster and undisturbed owing to the stasis caused by the strangulation.

RESULTS OF FŒTAL DYSTOKIA.

By H. D. FENIMORE, D. V. S., Knoxville, Tenn.

Was called ten miles away to deliver a calf after all the neighborhood had exhausted their efforts on the case. Found the calf in the anterior presentation with head turned back. The membranes had been broken twenty hours before and the vagina was dry and inflamed. Succeeded in straightening the head and delivering the calf. Washed out the uterus with antiseptic solution, gave a stimulant, and left the cow apparently in good condition. About four months later I was called to the same place to see a large Jersey bull with nine inches of his penis hanging out with dry gangrene. I cast the bull and amputated the diseased portion. In trying to find out the cause of the bull's condition, they told me that the day before they first noticed it, he was trying to serve the cow that I took the calf from. I had the cow brought to me, and found that all that part of the vagina between the hymen and the os was entirely grown solid. I told the owner that the cow should be killed and buried, as the meat or milk was not fit to use, because of absorption of material from the uterus that could not escape. He turned her out in a woods where there was plenty to eat and drink, but she gradually wasted away and died about three months later. The bull could not extend the penis, and instead of the urine running down the sheath and out the natural opening, it formed a new opening nine inches further back. The sheath between the two openings became absorbed, the skin drew up smooth over the abdomen like a cow. The hairs at the natural opening became shorter and finer and those at the new opening became coarser and longer. He was slaughtered for beef in fine condition.

TRAUMATIC SECTION OF FLEXOR METATARSI MUSCLE—SUTURE—RECOVERY.

By W. L. West, V.S., Belfast, Me.

Jan. 16, 1900, was called fourteen miles into the country to see a horse which had been injured by jumping onto a buck saw, the blade of which protruded in such a way (through the frame) that it made a skin wound in an oblique direction four inches above the hock joint, no more than an inch long, but which completely severed the flexor metatarsi muscle with no perceptible injury to adjacent structures.

I chloroformed the horse, shaved the parts, and enlarged the skin wound; drew the leg forward and irrigated the wound very thoroughly with 1 to 1000 bichloride solution. Meantime having had my instruments, sutures and bandages boiled, I sutured the tendon, muscles, fascia and skin separately; dusted the wound externally with iodoform sugar and applied muslin bandage soaked in above solution; put a strap on the foot to keep it forward, and complete recovery ensued.

PARTURIENT PARESIS BEFORE PARTURITION.

By H. D. Fenimore, D. V. S., Knoxville, Tenn.

Having had a few such cases, will give the history of one, which is practically the same for all. Was called on Saturday evening to see a very valuable cow. Found her suffering with a very severe case of parturient paresis. She was lying flat on her side not able to raise her head. On examination I found the os dilated, but the fœtal membranes were not broken. The calf was in normal position, but all labor had stopped. This serious state of affairs was all developed very quickly. One hour before the cow was seen walking around apparently in good condition. I delivered the calf without any trouble. The membranes were adherent, so I did not attempt to loosen them, preferring to wait until next day. I gave her the iodide of potassium treatment and left her in charge of an attendant for the night. On Sunday morning I was telephoned to come early; found her able to sit up on her breast and hold her head up, but with a complete case of prolapsus of the uterus, and very much swollen. I took off the fœtal membranes, cleaned up the uterus, and replaced it with great difficulty owing to its size and the recumbent position of the animal. Fastened it in with stitches in the vulva, as described by Dr. Bridge. Gave a second treatment of iodide of potassium and a pint and a half of linseed oil and two ounces of turpentine. On Monday morning she was up doing well.

In all the cases I have seen of parturient paresis before parturition, the calf has been in normal position and very easy to deliver, and could have been easily expelled by the mother had the disease not stopped labor. I also notice that these cases develop alarming symptoms very rapidly.

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
of the McKillip Veterinary College, Chicago, Ill.

ABDOMINAL SURGERY.

II. Wounds of the Abdomen (*Concluded from page 291*).

1 *Non-penetrating Wounds.*—This classification of wounds includes all those that do not penetrate into the peritoneal cavity, and vary from a simple division of the cutaneous structures

to that of all the structures that compose the walls but the peritoneum. These wounds are usually the result of accidents, such as have already been mentioned, and as a rule require surgical attention in order to obviate undesirable results which usually follow as a consequence of negligence on the part of the surgeon or the client. These wounds may be divided into two classes, viz. : (*a*) Simple Wounds, and (*b*) Complicated Wounds.

(*a*) *Simple Wounds.*—The simple non-penetrating wounds are those that consist of a division of the soft structures without the introduction of foreign bodies which may be introduced into it, either by the interception of substances, such as part of the harness, vehicle, blanket or any object that may accidentally come between the patient thus injured and the object which inflicted the wound, or by the retention of part of the object which may be broken off by the force of the blow as it entered the abdominal walls or while ejecting it from the walls. Simple wounds may have septic products introduced into them, but do not contain other foreign substances.

(*b*) *Complicated Wounds.*—The complicated non-penetrating wounds of the abdomen include all wounds that contain foreign substances which may be introduced as mentioned above. Considerable attention must be given to these wounds in order to ascertain the true condition; the object that produced it must be carefully examined; the position of the patient when injured should be ascertained; and the condition that surrounded him at the time of the accident should be obtained from the coachman, driver or attendant; to all of which the surgeon should add his own deductions to the information thus obtained, and "govern himself accordingly."

Treatment.—In treating these wounds the chief object in view should be to make it an aseptic wound that will heal as readily as a surgical wound, and the following course of treatment should be adopted, viz. :

1. Arrest all hæmorrhage.
2. Cut away all tissues that are likely to become necrotic.
3. Clip the hair, and clean the part surrounding the wound.
4. Ascertain whether simple or complicated.
5. Treat according to indications.
6. Apply sutures, dressings and bandages required.

Always arrest all hæmorrhage before attempting to do anything else; to attempt to treat a wound while wading in blood is unsurgical, and should never be done under any circumstances. After the hæmorrhage is arrested the wound should be relieved of all the lacerated tissues that are likely to never be reorganized. The hair surrounding the wound should be carefully clipped, and the surrounding skin thoroughly cleansed. The wound thus prepared may now be explored and its true condition ascertained; if a simple wound it must be irrigated with sterilized water, carefully sutured, dressed and bandaged; but if a complicated wound, all foreign bodies must be removed, the wound must then be well irrigated, sutured, dressed and bandaged. When drainage is necessary, an opening should be left at the lower part of the wound. Fomentations or cold packs should be used when indicated. If there are indications of sepsis the dressings should be removed and the wound must be thoroughly irrigated with water and if necessary antiseptic solutions may be used; the dressings and bandages should be replaced after the wound is cleaned, and supervised as necessity demands.

Penetrating Wounds of the Abdomen.—In domestic animals these wounds are usually caused with blunt or sharp pointed instruments, such as forks, bayonets, knives or horns; by falls upon pointed objects, such as plow points, bolts, harrows or spurs; by leaping over fences; by the bite of carnivorous animals, and gunshots. All wounds of this class should be considered serious, no matter how small and insignificant they may appear. A simple puncture is often more dangerous than a wound that first appears serious, such as those that are complicated with visceral injury. In most every instance these wounds are inflicted with objects that are not aseptic and need immediate attention. A simple insignificant appearing wound is often neglected, and as a matter of course is followed by infection, fistulæ and secondary abscesses which could have been prevented, had it received surgical attention at the proper time. It is necessary in all cases to ascertain the character of the wound and to give it the surgical attention indicated. The use of a probe should be avoided if the condition of the wound can be determined without. The appearance and condition of the object that produced the wound, will to a degree of certainty, indicate the character of it, and to some extent, the nature of infection likely to follow; but too much reliance should not be placed upon a condition guessed in this manner, for a fistula, an abscess or tetanus following the treatment of a wound of this character is avoidable and should therefore be prevented.

Penetrating Wounds that Divide the Peritoneum.—These wounds are the most simple ones included in this classification of abdominal wounds. The penetration of the peritoneal cavity may be revealed by the presence of the viscera or the protrusion of it into the wound ; or suspected by the amount of shock following the injury ; and sometimes by symptoms of peritonitis which follow soon after the accident, but in all events suspected perforation should be treated as if they actually existed. These wounds are more serious in herbivora than in carnivora or omnivora ; this being due to the tension of the abdominal walls caused by the large digestive organs common to them. In ruminants these wounds are not so serious as in non-ruminating herbivora, and all non-ruminating herbivora are solipeds, which are strong, active and muscular animals that are very susceptible to peritonitis and consequently abdominal wounds are more dangerous than in ruminants. This susceptibility is due to the activity and irritability of solipeds. The more active, nervous and irritable the animal the more susceptible it is to peritonitis following abdominal wounds, and the cause of susceptibility is the activity and irritability of the patient which retards or prevents cicatrization, and increases the danger of infection, and such infection is followed by an inflammation which extends to the peritoneum. The horse is the best developed representative of the family of solipeds and is therefore more susceptible to it than either the mule or ass as a consequence of the development of his muscular and nervous system.

Ruminants being of a different nervous temperament generally, are less susceptible to it, and therefore wounds of this character yield to treatment much better than in the horse.

The result following the treatment of these wounds depends to a great extent upon the prevention of infection, peritonitis and prolapse of the viscus. If asepsis can be obtained and continued, a recovery may be expected ; and even though pus exists as a natural consequence of faulty antisepsis, the early adoption of a more thorough antiseptic treatment may ward off peritonitis when conditions are apparently unfavorable for a good recovery.

Treatment.—The main object in treating abdominal wounds of this character is to prevent a prolapse of any part of the contents of the abdominal cavity, and to make the wound aseptic. All foreign substances and soft tissues that are lacerated and that may become necrotic must be removed ; all hæmorrhage must be arrested; large blood vessels ligated and capillary hæmorrhage checked by irrigating the wound with either hot or cold water before applying stitches or dressings. If it be necessary to cast the animal to ligate blood vessels, irrigate the wound, apply sutures or adjust dressings, special care must be taken not to injure or infect the wound, cause a prolapse and to protect it should one accidentally appear. In some cases it may be necessary to apply a temporary dressing to prevent additional injury. The administration of an anæsthetic may be necessary to keep the patient quiet while the wound is being repaired and the dressings adjusted. If the wound is large the peritoneum should be sutured with catgut and the muscles and skin with strong silk or linen thread. Quilled sutures may be used for the muscles and skin. The dressings may be oakum, cotton, or wool properly sterilized and held in position by improvised means. After the dressings have been adjusted the patient should be kept quiet until the wound is healed. If there is no marked elevation of temperature the dressing should not be removed until the sixth or seventh day, excepting when it becomes soiled or saturated with discharges from the wound

Food should be given in small quantities and be nutritious and digestible. Water also must be given often and in small quantities.

If it becomes necessary to remove the dressings the wound should be irrigated and washed with antiseptics, but if no sign of sepsis is noticed it should be irrigated with sterile water only. There is but little danger of infection after the third or fourth day.

Abdominal Wounds with Prolapse of Viscera.—Abdominal wounds of this character are very dangerous generally in herbivora, but less so in carnivora; but a prolapse in the viscus in either is usually considered a serious complication. The protrusion of any part of the anatomical structures or organs contained in the abdominal cavity would not be more serious than a penetrating wound without a prolapse, were it not for the danger of introducing septic products into the cavity in returning the prolapse, and for the difficulty of retaining its position when returned. In herbivorous animals a prolapse of the small intestines is more dangerous than that of any other part of the contents of the cavity, but in carnivora, however, one is as easily returned and retained in place as the other. In some cases when an omentum protrudes it may become ruptured or some part of it may be removed in returning it, thus forming an opening through which the intestines may pass and form a hernia (*hernia interna abdominis*) which at times becomes strangulated. Frequent colics or intestinal occlusion following the return of an omental prolapse is very suggestive that something of that kind exists, but the true condition can only be ascertained by performing celiotomy and exploring the cavity; this, however, is not easily done in herbivorous animals, but in carnivora this procedure should not be overlooked when the indications demand such interference. An omental prolapse is generally not so serious as an intestinal or that of any other organ of the abdominal cavity. The mutilated part and all that is likely to become necrotic can easily be removed, but before returning it into the cavity it should be thoroughly cleansed and all hæmorrhage arrested.

Treatment.—The first object in treating wounds of this character is to prevent the prolapse from being injured and infected. If the patient is a large animal and requires casting, a provisional dressing should be adjusted in such a way as to protect the prolapse during the procedure. The prolapse, wound and skin surrounding the wound, should be thoronghly cleansed, the prolapse returned into the cavity, the opening properly sutured, the required dressings carefully applied, and the bandages substantially adjusted. Should no indication of sepsis appear the dressing may be allowed to remain until the sixth or seventh day, or at least until the third or fourth, when the danger of infection is past. If the part of the intestines that formed the prolapse should become necrotic, a resection of the diseased portion is the only procedure that will increase the probabilities of recovery.

Abdominal Wounds Complicated with Visceral Injury.—These wounds are caused in the same manner as other abdominal wounds; the complication may be an injury to the stomach, intestines, liver, kidney, bladder, uterus or any other structure located in the abdominal cavity. The severity of the wound depends much upon the manner in which the wound was inflicted, the amount of damage done to the viscus, and the chances of infection. If the injury is within easy access the condition is but little worse than a prolapse, but if deep seated with several perforations, such as may be caused by a deep puncture, or a gunshot, the condition is very dangerous and usually fatal in herbivorous animals, but in carnivora the perforations can be as easily located as in man. In the horse or ox the colon and cæcum is more often perforated than the small intestines, but in the dog the injury is about as common to one as the other. The colon and cæcum of herbivora is generally distended by aliment and gas, which gives it a more fixed position than in carnivora, while the small intestines are more empty, more motile and more difficult to perforate than either the colon or cæcum. Perforation of the stomach of the horse is more dangerous than in the ox or dog. Ruminants tolerate abdominal wounds much better than solipeds. Dogs yield to treatment of abdominal wounds much better than other domestic animals. Celiotomy is a simple operation; exploration of the abdominal cavity comparatively easy, and the surgical treatment of these injuries are generally successful in carnivorous animals, if the operative procedure is correct in every detail. When multiple perforations exist all must be sutured before the cavity is closed. The perforations may be detected by inflating the bowels with filtered air. This method of detect-

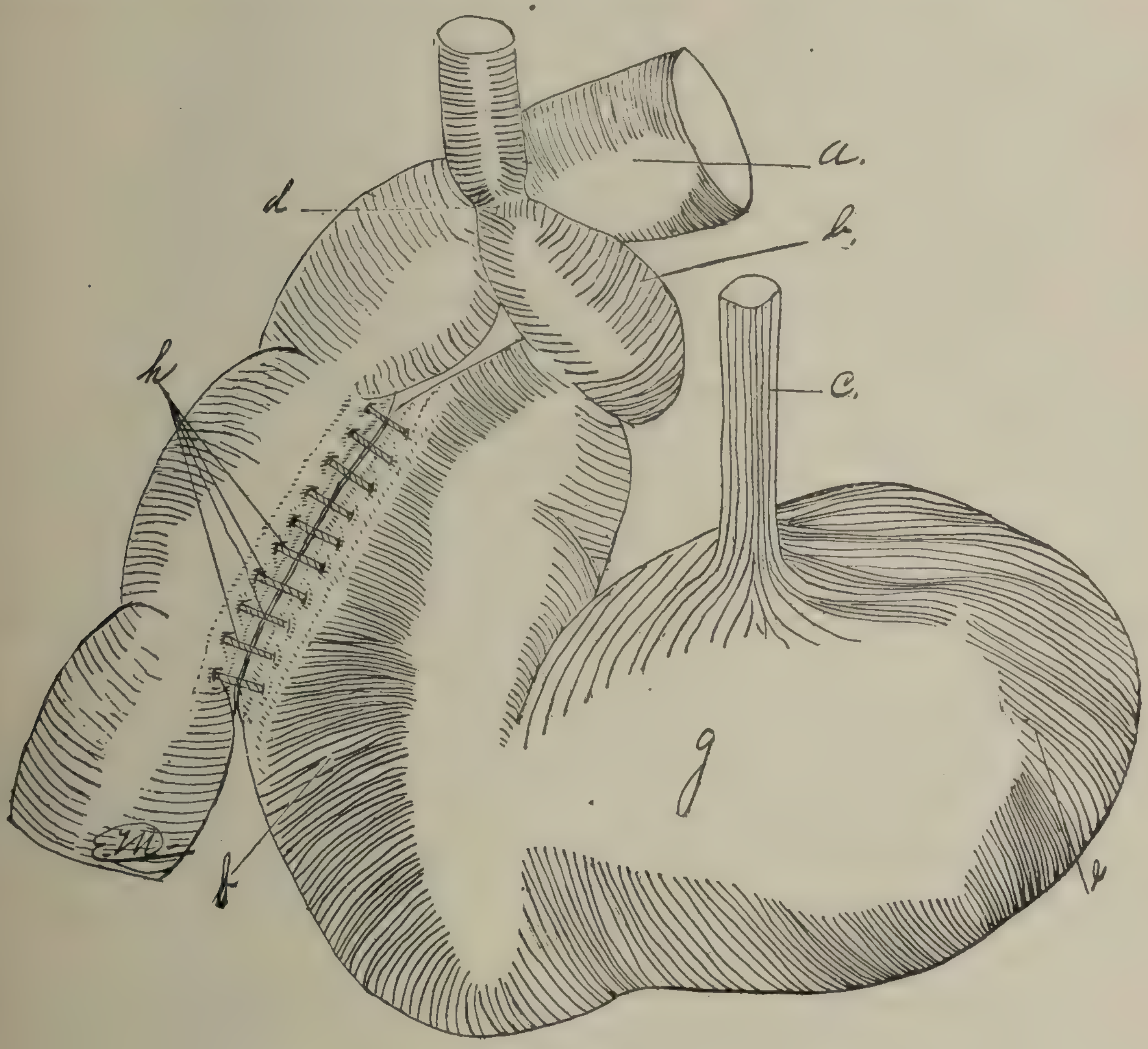


FIG. 10.

GASTRO-INTESTINAL ANASTOMOSIS.

A, portion of small intestine; *b*, pylorus; *c*, œsophagus; *d*, stricture; *e*, cardiac portion; *f*, pyloric portion; *g*, anterior surface.

ing perforations should always be adopted when gunshot wounds of the abdominal region require surgical interference, at least when the cavity is explored, for many of the perforations found in this way might otherwise be overlooked, and even though the surgical methods were otherwise correct, notwithstanding the oversight, nevertheless the failure would be preferred against the antisepsis.

Treatment.—The treatment consists of repairing the damage done to the bowels, stomach, uterus, kidney, bladder or other abdominal organs injured, adopting strict aseptic measures in every detail, and overlooking nothing that might cause an unfavorable termination. Perforations of the intestines should be sutured (*Enterorrhaphy*, *Fig. 5*, *Vol. XXIV.*, *No. 4*, *p. 280*), and when all visible perforations have been sutured the intestines should be inflated in order to ascertain if any have been overlooked ; the cavity should be irrigated ; the wound thoroughly cleansed and the skin surrounding the wound should be well disinfected ; the wound properly sutured ; surgical dressings carefully applied and bandages securely adjusted.

Peristalsis must be arrested by the use of opiates, and the diatetic treatment as that following the treatment of other intestinal wounds. In large domestic animals the success in treatment of wounds of this description depends much upon the ingenuity of the surgeon in improvising methods to meet the demands of existing conditions, while in small animals a methodical procedure can more easily be followed, and every detail carefully observed. If a part of the intestines is badly mutilated the part so affected must be resected and the ends approximated (*Rev.*, *Vol. XXIV.*, *No. 3*, *Figs. 2 and 3*, *p. 213*, *and No. 4*, *Figs. 5*, *6*, *7 and 8*, *p. 283*). If any portion of the intestinal tract is to be relieved of its function or part of it, a gastro-intestinal anastomosis (Fig. 10) ; a lateral anastomosis (Fig. 12) ; or the formation of an artificial anus (*enteroproctia*), are all operations that can be used for this purpose in their respective indications ; in fact, the course to be followed in such instances must be determined while the patient is on the table, and the simplest possible method adopted that will meet the demands or accomplish the purpose.

When the stomach of the horse is perforated the condition is generally dangerous, if the opening is large enough to allow the contents to pass into the cavity ; small punctures however often terminate favorably. In ruminants perforations of the stomach are not so serious as in the horse. Rumenotomy is an operation that is followed with very flattering results. In the dog gastric wounds are accompanied with very alarming symptoms, but are not so serious as in the horse, and their surgical treatment is generally followed with very good results. Wounds of the uterus should be stitched with sterilized catgut thoroughly cleaned and replaced. Wounds of the kidneys are usually detected by the passage of bloody urine (*hematuresis*) and are generally serious complications. The only surgical treatment in such cases is an incision of the kidney (*nephrorectomy*). When the bladder is perforated the urine escapes into the cavity. The flowing of urine from the abdomen through the external wound is an indication that the complication is a ruptured or punctured bladder. Anuria is another condition which is very suggestive in such instances. In large domestic animals such injuries are serious and generally terminate fatally; but in carnivora the ureters can be anastomosed with the rectum, which affords an exit for the urine through it and the anus.

Animals often die shortly after receiving wounds of this character, either from shock or internal hæmorrhage. In every case the condition of the pulse and mucous membranes should be immediately ascertained, and if the indication points to internal hæmorrhage the first step in the treatment of such cases is to arrest it; this being done the wound may be treated as the indication demands. In case of collapse from loss of blood transfusion or a subcutaneous injection of a normal salt solution (*hypedermoclysis*) should be used to stimulate the patient. The temperature of the solution should be above normal (110–115°F.).

Shock is another condition which should be carefully studied. In some cases it may be considered as nature's method of arresting hæmorrhage, and an early action may be detrimental. Provisional work, or assistance of any kind that will not inflict pain but alleviate it, is decidedly the best procedure in some cases. To delay an operation, however, may be beneficial or injurious, and to decide whether to operate during profound shock or to wait for a reaction requires good judgment.

By exercising care and good judgment many of these abdominal wounds can be brought to a satisfactory termination; the management of these wounds and injuries requires a more thorongh observance of the details of asepsis and antisepsis than other wounds; the main object in treating them is to convert them into surgical (*aseptic*) wounds, by cutting away the lacerated and disorganized tissue under aseptic precautions, and bringing the edges of the thus formed aseptic wound in apposition in order to encourage primary union if possible.

Considerable attention should be given to drainage; primary dressings should be applied so that free openings will afford an outlet for the wound discharges and at the same time exclude all pathogenic organisms from it.

ABDOMINAL OPERATIONS.

The operations that should be given a consideration in abdominal surgery of domestic animals may be divided into *primary* and *secondary*. The primary being those that are performed in order to enable the operator to give surgical attention to some part of the animal economy to which he cannot have access otherwise; *e. g.*, tapping of the intestine or stomach cannot be accomplished without passing through the peritoneal cavity; a resection or anastomosis of the intestine without opening the abdomen (*celiotomy*); herniotomia externa or interna without incising the hernia (*herniotomy*).

A secondary operation is one that requires some surgical interference before it can be undertaken. The importance of each of these abdominal operations will be considered according

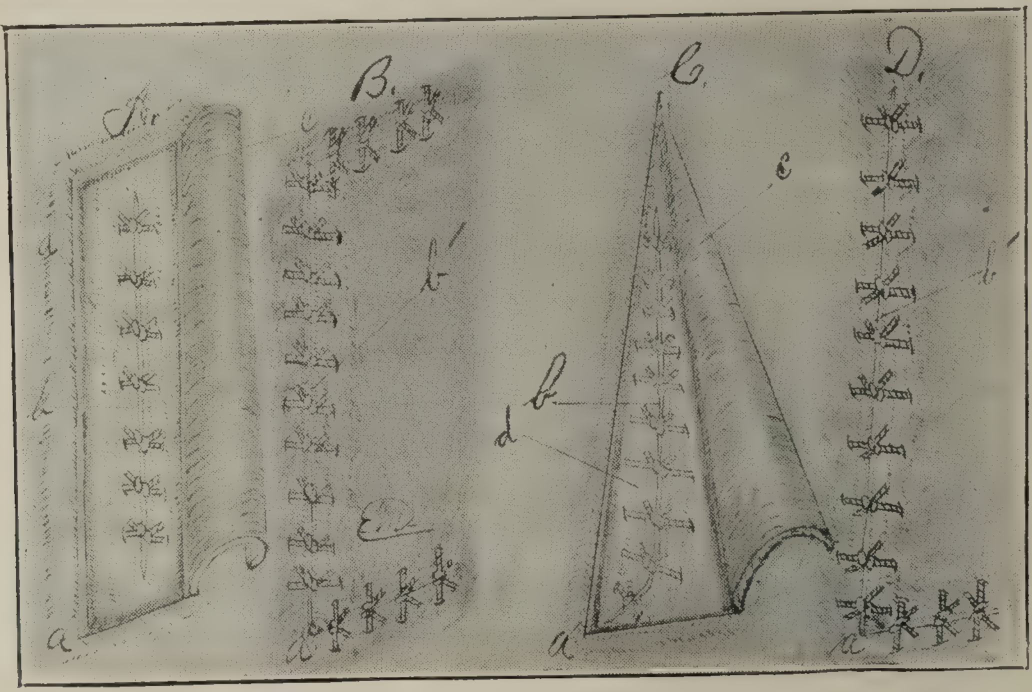


FIG. II.

ABDOMINAL INCISIONS.

A, rectangular cutaneous incision; a', inferior angle of incision; *b*, muscular incision; *c*, skin, subcutaneous tissue and panniculus carnosis; *d*, abdominal muscles.

B, rectangular incision when sutured; *a*, opening for drainage.

C, triangular incision; a', inferior angle of incision; *b*, muscular incision; *c*, skin, subcutaneous and panniculus carnosis folded back; *d*, abdominal muscles.

D, triangular incision, sutured; *a*, opening for drainage; b', cutaneous incision.

to their respective value, efficiency and significance, together with secondary operations belonging to each, and will be taken up in the following order, viz.:

I. Celiotomy and Laparotomy.
1. Gastro-intestinal anastomoses.
2. Intestinal anastomoses.
   (a) Lateral anastomesis.
   (b) End-to-end anastomosis.
3. Intestinal approximation.
4. Enterotomy.
5. Enterostomy.
6. Enterorrhaphy.
7. Gastrectomy.
8. Gastrotomy.
9. Rumenotomy.
10. Gastrorrhaphy.
11. Cæsarean section.
12. Ovariectomy.
13. Castration of cryptorchids.
14. Hysterotomy.
15. Hysterectomy.
16. Hysterorrhaphy.
17. Nephrectomy.
18. Nephrorrhaphy.
19. Ureterostomy.
   (a) Uretero-ureterostomy.
   (b) Uretero-rectostomy.
20. Splenectomy.

II. Paracentesis.
1. Celiocentesis.
2. Enterocentesis.
3. Gastrocentesis.

III. Herniotomy.
1. Herniotomia externa.
2. Herniotomia interna.

I. *Celiotomy, Laparotomy and Abdominal Section.*—In a general way these terms refer to an incision made into the abdomen, an opening into the cavity. *Celiotomy* is a word composed of two parts, a Greek root and an affix. The root refers to the abdomen and the affix to an incision or opening, and means literally, a surgical opening of the abdomen or belly.

Laparotomy is composed of a Greek root referring to the flank or loin, and its literal significance relates to an opening through these structures; therefore an opening at the linea alba, through the vagina or the inguinal canal is not a *laparotomy*, but a *celiotomy*. Laparotomy is always a celiotomy, but celiotomy may not be a laparotomy. The term celiotomy is preferable, and is generally used in referring to a surgical opening of the abdomen, no matter what route is taken. *Abdominal section* is a term often used in this connection and is very applicable.

The abdominal cavity is seldom opened by making an incision through the abdominal walls of such animals as the horse, but it is frequently reached by other routes, such as in castration of cryptorchids, through the inguinal canal; or in ovariectomy through the vagina; in the ox laparotomy is an operation followed with very good results; and the dog tolerates most any abdominal section better than other domestic animals. In locating the most favorable place to open the cavity th esplanchnology of the animal should be carefully studied. The solipeds with their distended abdomen, which is a result of the great development of the colon and cæcum, have no very favorable place for such surgical interference; ruminants, with their large, well-developed stomachs, and comparatively small colon and cæcum, have as a result of this splanchnotomic difference less tension upon the flank than the horse, hence tolerate laparotomy better; and carnivora, with their colon but little larger than the small intestine, the cæcum very small, and the abdomen not normally distended, can as a consequence of these peculiarities withstand celiotomy at various places with a degree of assurance that the results will be favorable.

I. *Celiotomy.*—The technique is as follows: Secure the patient properly, and if the work you wish to accomplish after the cavity is open requires delicate manipulation, a general anæsthetic should be administered. The surface chosen for the incision should be clipped and shaved, and made as near aseptic as possible by washing it with soap and hot water and a strong antiseptic solution. This should be done, when possible, the day before the operation, and repeat the application of soap and hot water and the strong antiseptic solution just prior to it. In the horse the incision should be made in the left flank a little below and anterior to the external angle of the ilium. Make the incision through the skin and external muscles of the length desired, then make a small opening at the superior extremity of this incision and insert the fingers into the peritoneal cavity and use them to prevent the viscera from being injured while the incision is completed. After completing the operation in question the peritoneum and muscles must be sutured with catgut, and the skin with strong silk sutures.

If the operator is thorough in his aseptic methods, one of the following incisions may be chosen (Fig. 11). The first consists of an incision made on three sides of a rectangular figure (A) five centimetres wide and the required or desired length; the skin, subcutaneous tissue and the panniculus carnosis is separated from the external oblique muscle and turned back as in (Fig. 11 A); all hæmorrhage should be arrested by the usual method; a dry aseptic cloth is placed over the opening thus formed, and a corresponding opening made into it; and then, an incision (b) is made through the abdominal muscles and peritoneum with the usual precautions (not to injure the viscera). After the desired operation has been completed, the peritoneum and muscles should be sutured with catgut (Fig. 11 A b); the panniculus, subcutaneous tissue and skin must be substantially sutured with strong silk, as represented in (Fig. 11 b B), leaving an opening (a B) at the lower portion of the wound for drainage.

The second method consists of an incision made on two sides of a triangular figure (Fig. 11 c), through the same structures as mentioned above and with the same aseptic precautions. The incision through the abdominal muscles and peritoneum may be curved (Fig. 11 C b) or straight and in closing it catgut sutures should be used, but in making the external suture, strong silk stitches are required (Fig. 11 D b). The lower angle of the incision (a) should be left open for drainage.

The after treatment will depend upon the indications: if the work was done aseptically the edges of the wound will promptly unite; if there is no indication of sepsis the dressings should not be disturbed; if undue inflammation follows it must be treated as the indications demand; and the attention given to drainage should depend upon the wound discharges. In the large animals it is not practical to apply fabric bandages encircling the entire body, for these cannot be kept in place well enough to form a safe protection for an abdominal section. A satisfactory method of protecting the wound against infection is to first provide a small opening at the bottom and plug it with a wad of antiseptic cotton, then after patiently drying the whole region it is painted with a layer of rosin and ether solution and then matted with cotton wool. Several layers are thus applied until the matting is about one centimeter thick. In a few minutes the ether has evaporated and has left an impervious clothing which will remain intact indefinitely. This dressing may then be protected with bands encircling the body but ordinarily it will perform its function without further attention, until dressing becomes necessary, at which time it can readily be removed by dissolving it in ether or alcohol. The drainage plug of course demands daily attention but the remaining portion of the wound need nor be disturbed until safely united—about the seventh or eight day, when the dressing is dissolved, the stitches removed and a new dressing applied. The sutures uniting the peritoneum and muscles are left in to become slowly absorbed. This simple after-care will answer for all animals.

1. Gastro-intestinal Anastomosis.—This, like all intestinal operations, is only rendered possible by celiotomy, and can be performed on animals of the canine species with very good results; in the bovine, the results are not so encouraging and in the equine species they are very uncertain. The indication for such interference is generally due to accidental wounds of the pyloric portion of the stomach, duodenum or jejunum; or diseased condition of the same, such as abscesses or tumors (*enteroncus.*)

This anastomosis can be made between the stomach and any part of the intestine that can be approximated without altering their position too much. The anastomosis is generally made between the duodenum or jejunum and the stomach, for it is necessary that as much of the intestinal tract be utilized as possible.

Operation.—In the canine species the operation is comparatively easy and simple, but in large animals the procedure is accompanied with many disadvantages and inconveniences. The incision into the abdomen may be made along the linea alba or on the left side of it, and large enough to make an exploration of the anterior part of the cavity, and after the condition has been ascertained it may be enlarged if necessary. The point to be connected to the stomach should be selected and all the contents of the intestine between it and the pylorus must be pushed or worked back beyond it; an incision is then made into the wall of the stomach and its contents removed; an incision, corresponding in size with the one in the stomach is now made into the wall of the intestine. The edge of the incision made in the intestine (Fig. 10-a) is sutured to the edge of the one made in the stomach (Fig. 10-f) with two rows of stitches, one (h) passing through the muscular and serous coats of both stomach and intestine, and the other binding the mucous coats. The musculo-serous series of stitches should be made of catgut and those binding the mucous coats may be made with silk.

If desired, as many of the stitches as possible in the musculo-serous series may be ligated on the inside (h), but if it is more convenient to ligate them on the serous surface it can be done with the assurance that the results will be as satisfactory as if ligated otherwise. The stitches of the mucous coat may be either continuous or interrupted, the interrupted, however, are preferable, and should be so applied as to bring the edges together properly and bind them firmly.

In case that the portion of the intestine between the pylorus and the part anastomosed, it should be resected and the ends approximated; in no instance should the natural lumen of the intestinal tract be disconnected, and when the intestinal operation is complete the abdominal incision should be sutured, as in celiotomy.

After-treatment.—Shock must be treated as in all other operations; absolute rest should be enforced; peristalsis arrested by opiates; enemata containing carminatives should be used to relieve flatulence; and pain must be relieved by medication.

If indications of internal hæmorrhage follow, the cavity must be opened and the hæmorrhage arrested; symptoms of sepsis and peritonitis demand cold packs, and if unchecked the cavity must be reopened, the septic fluids washed out and the cavity irrigated with antiseptics; but if none of these complications appear the wound should not be redressed until the seventh or eighth day.

Nothing should be introduced into the stomach for the first two or three days, excepting now and then a very small quantity of alcohol and warm water; nutritious enemata should be substituted for food; stimulants may be given hypodermically; subcutaneous injections of a normal salt solution may be used to stimulate circulation and slacken thirst; liquid food in small quantities should be given after the second or third day and digestible food after the sixth.

The patient should not be permitted to over exert himself for at least a period of thirty days and the abdominal incision should be supported by an improvised truss.

(*To be continued.*)

SURGICAL ITEMS.

If indiscriminate operating is often responsible for the sacrifice of healthy organs, reluctance to operate also has a heavy responsibility to bear. . . . The conservatism which saves organs rather than health is not a true conservatism.—(*J. B. Wheeler.*)

Dried wound secretions which require prolonged soaking to soften and remove them, can be readily dissolved and washed off if soaked with hydrogen dioxide (H_2O_2).—(*L. A. M.*)

As surgery progresses, the operator becomes more fearless and his methods more simple; by practice, he avoids long and tedious procedures; by cautiousness, deferred convalescence; by asepsis, unsightly cicatrices; with anæsthetics, the infliction of pain; and, lastly, his knowledge of surgical anatomy leaves no telltale offenses against the solution of continuity.—(*E. M.*)

It is never advisable to perform an amputation immediately after an injury. The tendency of modern surgery is to delay the operation until the tissue has regained as much vitality as possible.—(*V. Sch. Int. Journal of Surgery.*)

As a surgical analgesic and for the purpose of facilitating the action of anæsthetics, heroin hydrochloride is being extensively used in the German clinics.—(*L. A. M.*)

The prognosis in cases of penetrating gunshot wounds of the abdomen treated on the expectant plan is extremely bad, the death rate being about 90 per cent.—(*Int. Jour. of Surgery.*)

The keynote of the treatment of general septic peritonitis must be the relief of the peritoneum and of obstructed lymph channels, and this can only be done by removal of the septic exudates and subsequent drainage.—(*Int. Jour. of Surgery.*)

The average patient when nearly well of a sickness will take a bottle of Rotgut's Relief or a box of Poopendike's Pills, and to these he will give all the glory, and "the doctor be d——d."—*Medical World.* The experienced veterinarian is fully capable of comprehending the *ennui* which actuated the writing of the above paragraph.—(*L. A. M.*)

EXTRACTS FROM EXCHANGES.

RUSSIAN REVIEW.

ON THE PHYSIOLOGY OF URINARY SECRETION [*By Schwarz*].—All the theories on urinary secretion agree on the point that the principal part of the renal function belongs to the blood circulation through those organs ; but various opinions are expressed upon the relations which exist between the circulation on one side and the quantity of urine secreted on the other. With a special apparatus, Schwarz has succeeded in applying at will pressure on the renal vein, thus to reduce the rapidity of the circulation in the kidneys. In those experiments he observed not a reduction in the quantity of the secretion, but, on the contrary, an increase. When the circulation was completely shut up, urine still increased in quantity, varying between 2½ to 50 times more. Ligature on the vein produced after two hours and fifteen minutes, a complete arrest of the secretion. Experimental arrest of the renal circulation, when made for a short time, produces no bad effects ; soon after the urine resumes its normal qualities. But, if the arrest is kept up for some time, the kidney swells, increases in weight, and in all its dimensions. The reduction in the renal secretion obtained by Hudenhain, is explained by Schwarz in admitting that the venous stasis, which occurs in these experiments, gives rise to blood coagulation in the tubes of Malpighi, and interferes with its permeability. Electric lighting of the superficial glands reduces the secretion of urine. Irritation has no effect on them when they have received first an injection of atropine. Experiments made with diuretic substances has shown that not one acts through the intermediate of the blood circulation on the kidneys—it must be supposed that they have a direct action on the epithelium of the urinary canaliculi.—(*Archiv. Vet. Russ. and Prog. Vet.*)

UPON THE COAGULATION OF MILK [*A. Rosai*].—The author has directed his attention to the minute chemico-bacteriologic study of the coagulation of milk. The determination of lactic acid in coagulated milk and the cultures on various medias were made with the methods of Gunther and Thierfeldel. The numerous experiments of the author show that in the coagulation of the milk, besides the lactic acid polarizing to the right, there is another lactic acid which is without optic effect. The formation of these acids depend on the temperature when the coagulation itself occurs. When it takes place at the temperature of the chamber dextogiric acid predominates ; when it takes place at 36°–39°, it is the other. Three different micro-organisms promote the coagulation, the bacillus acid, paralactici, the bacillus luerolactic Halensis, and the micrococcus acidi paralactici Halensis. The most important and most frequent is the first. At ordinary temperature milk coagulation is almost exclusively due to it. Neutral lactic acid (which does not act optically) is formed in the milk at the same time as the first, and second micro-organisms develop. Conditions on food of the micro-organisms have no influence on the nature of the acids they form.—(*Archiv. Vet. Russ. and Prog. Vet.*)

POISONING BY BEES' STING [*J. Berger*].—While two bees' hives were moved, two thoroughbred colts were stung. One principally on one side of the neck and the other on the superior part of the respiratory tracts. On account of these stings, the first had a swelling as big as the hand on one side of the neck and in the other tracheotomy had been performed because of the difficulty of respiration. With him there was also a manifest dysphragia, which produced dropping of food in the trachea, followed by pneumonia by foreign bodies and death in six days. The swelling of the first was incised and disappeared in a few days. As curiosity the author mentions that the sire of the colt that died had bitten its dam during copulation on the left side of the chest and that when the colt was born, he carried on the same spot a defectuosity of the skin, just where the mother had been bitten eleven months before.—(*Archiv. Vet. Russ. and Prog. Vet.*)

ITALIAN REVIEW.

MEGALONOSPHENIA IN THE HORSE [*Dott. Carlo Nencioni*].—In July last a horse, aged 17 years, was brought to him for a large suppurative collection on the left gluteal region. The abscess was opened and drained. After a few days the appetite became delicate, and gradually the animal manifested symptoms of excessive anæmia, with which he died in a few days. At the post-mortem nothing special was found in the thoracic cavity, but on opening the abdomen it was found to contain a great quantity of sero-bloody fluid with thick clots of blood. The liver was soft. The spleen was enormously distended and filled one-third of the abdominal cavity. Its consistency was puffy; its superficy bosselated; the follicles hypertrophied. At about the centre of the external face there was a laceration through which the slow, fatal hæmorrhage had taken place. The seat of the abscess on the gluteal region presented nothing unusual beyond the lesion following a probably casual bruise. The weight of the spleen carefully taken was 13 kilogs 600.—(*Il Nuevo Ercolani.*)

DERMATOL IN AURICULAR CATARRH.—This astringent antiseptic, which renders such services in the treatment of wounds of bad nature, has been much used in cutaneous diseases of dogs, such as eczema, erythema, and Prof. Marconi has used it with great success in auricular catarrh, as follows: After thoroughly washing twice a day with a solution of sublimate 1 to 1000 or 1 to 4000, ointments with dermatol are very advantageous, such as: Dermatol 1 part, vaseline 7, lanoline 2. Or again: Dermatol 3 parts, oxide of zinc 2, vaseline 30. A coating gelatine has also been prepared with dermatol, 1 part, oxide of zinc 1, gelatine, glycerine, distilled water of each 6 parts.—(*Riforma Veterinaria.*)

MALLEINE FOR THE DIAGNOSIS OF GLANDERS. [*Dr. Borella Alete*].—The author relates his observations on 9 horses which had cohabited with another which having died with colic was at post-mortem found presenting lesions of glanders. The temperature of these horses was taken for twenty days previous to being injected and found to vary in average between 37.1 and 38.5. The temperature rose in all the horses, and in various quantity: one only $\frac{1}{5}$ of a degree, five between 1.3 and 1.8; in the three others it rose 2°, 2.3°, 2.6°. The three were condemned and the other five considered as suspicious. They were killed. Eight presented very suspicious lesions in way of formation, one only had pulmonary tubercles.—(*Clinica Veterin.*)

TUBERCULOSIS IN PHEASANTS [*Dr. Carlo Baldi*].—Several of these birds were brought dead to the veterinary clinic of Perugia to be examined. They came from a large property where the mortality had been quite extensive of late. At the post-mortem the liver was generally found much enlarged, with nodules of various dimensions, some of which contained a certain quantity of caseous substance. The microscopic examination of these nodules revealed the presence of numerous bacilli of aviary tuberculosis. The treatment recommended by the author to control the infection was essentially prophylactic, as much isolation as possible, prevent the large gathering of birds, and heavy rich feeding.—(*Clinica Veterin.*)

LARVÆ OF ŒSTRUS IN THE PERINEUM OF A DOG [*Dr. Carlo Baldi*].—A very handsome hunting dog presented great difficulty in defecation. On examining him he was found having a painful tumor on the perineal region with two suppurating points. The tumor was opened and a small quantity of serum let out, but no pus. With a small forceps twenty larvæ of œstri were removed from the cavity, which was coated internally with tincture of iodine. Recovery took place in a few days. This is the first time, says the author, that such larvæ have been found in that region. They belong to the gender called by Goudol *Dermatobia noxialis*.—(*Clinica Veterin.*)

DIPHTHERIC ANGINA IN FOWLS [*Dr. Carlo Baldi*].—Out of 60 head, 10 have died within a few days and the remaining 60 seem quite sick. The cadavers of five among the dead were brought to the author to find out the cause of the death and the remedy to save the others. The symptoms presented by those left no doubt as to the nature of the trouble, viz., diphtheric angina. These were: feathers standing, extreme loss of flesh, head bent on one side, beak gaping, rattling in the throat; in some the eyes were partly closed and looked blind, the temperature was raised one degree, the base of the tongue, the fauces and the palate were covered with yellow patches. The treatment consisted in the use of an iodo-iodiorated hydro-alcoholic solution applied all over the mouth and on the patches—the solution was made of pure iodine 10 grams, iodide of potassium 5 gr., alcohol 25 gr., distilled water 15 grams. Disinfection with vapors of burning sulphur was also used. Most of the birds were saved by this treatment.—(*Clinica Veterin.*)

CORRESPONDENCE.

THE PUBLICATION OF THE PROCEEDINGS OF THE A. V. M. A.—DR. HOSKINS' REPLY.

PHILADELPHIA, PA., June 30, 1900.

Editors American Veterinary Review:

DEAR SIRS:—In your June issue there appears under the head of "Correspondence," a letter that is so false in its statements of facts, so unjust in its deductions, so virulent in its inferences, that I cannot allow it to pass without a few words of explanation in reply.

The letter is almost entirely personal, and for this reason, but much against the inclination and habit of the writer, it appears necessary to make a somewhat personal reply.

The undersigned humbly apologizes to the profession and to the United States Veterinary Medical Association for having urged for election as its President for *one* year, against the better judgment of his colleagues, the writer of the letter under review. It will be remembered that a pæan of thanks was sent up at the end of that administration when every vestige of hope was dissipated of a possible re-election.

Equally do I seek the pardon of those who governed Purdue University for contributing to his selection to a place in that college, where his unsatisfactory services were borne in deep humility and a daily prayer for the hour of relief from his brief career in that institution.

I have already made my amends to the University at Bozeman, Montana, for the share of responsibility I bore in his selection as an instructor in that institution, where again his very unsatisfactory work and the well sustained charges of plagiarism brought forth a public rebuke that he has and continues to allow to go unchallenged.

I have long since apologized to those who were sought to accept the position he now holds at Cornell, for urging his consideration for that position and those who were buncoed into according him a three years' contract, the cunning outcome of his prior experiences in other institutions, and have many times uttered a prayer of sympathy for those around him, as I have learned from time to time of their retreat to the solitude of their rooms, to suffer in secret the pangs of regret and disappointment that have followed his selection. With those who have suffered under his boorish temperament as an instructor, helpless to flee from his consuming egotism, I have more than once been called to extend sympathy and comfort.

To the profession in the Empire State, on whose skirts he clung for many months, until arrangements were completed under sufficiently favorable auspices to enable him to obtain a State license and whose blighting influences already show in many directions, I offer my commiseration. If it were not for his phlegmatic earth-worm character he could not have made his parasitic return to association, professional and college work, and he would long since have gone to other pastures and accorded to his patient sufferers a relief that would be a lifted load of responsibility to which there would go up from the Great Lakes to Bedloe's Island a hearty accord of Amens.

I plead guilty to the preparation of the proceedings of the association in a manner wholly in keeping with what should characterize the production of all scientific work. I plead guilty to placing this work in a competent establishment, where three trained and experienced medical proofreaders were employed; a union shop where only the highest skilled labor is employed; a house that has sent forth for years the proceedings of every scientific medical society of Philadelphia, and to which the medical society of the State of his temporary adoption and parasitic existence invariably comes when it wants first-class work. No, I never did, thank God, place this work in job printing houses or country press, where scab labor is employed, and turn out as representative of a scientific body books that would disgrace a patent outside newspaper office, and I hope and trust that I may never be charged as a party to any such doings. I have only pity for one whose early training was so sadly neglected that when he was admitted to the association of men with higher ideas that there was nothing upon which could be developed some of the instincts of a gentleman. Even after years of friction there has been no wearing away of the traits that are looked for in the porcine tribe. These traits continue to show as bristles even when he is accorded a place among scientific associates, and especially in connection with his record of appreciation of the recognition accorded him after his name was stricken from the rolls for non-payment of initiation fees and dues, and he was numbered upon the records of that association only as a contributor to the deficit and as responsible, in part, for the loss of nearly fifteen hundred dollars in fees and dues that followed the purging of the rolls of that body, which had been maintained and sustained by veterinarians who were accorded membership therein under conditions similar to those that prevailed at his election.

I challenge the writer of that article, and summon him before the Executive Committee of the American Veterinary Medical Association, to produce one scintilla of evidence that one cent of money of that association was ever improperly used by me. I hurl back as an unmitigated and deliberate lie the insinuation that one cent of the money of the association was ever used in the *Journal's* Specials to convention cities.

Within the archives of the association there remains today a detailed daily statement of the receipt and expenditure of every cent of money received and disbursed by me during my official career, and, wherever it was possible to furnish it, a voucher for every dollar, and I demand the production of these to substantiate my claim. These accounts were duly audited by the auditing committees and transmitted to my successor without a question raised or an account disputed.

I reiterate the charges that an uncalled for haste in the issuance of the proceedings forced the omission of one of the most important papers, if not the most important, at a time when there should have been no effort left unturned to have published the one relative to army legislation by Prof. R. S. Huidekoper, covering his subject in a more thorough manner than ever before and just on the eve of the assembling of Congress, when every avenue of influence and aid was to be summoned to win for us a battle that we have waged for ten long years. This matter has had to be republished since at the expense of the association and the profession, and has lost some in value by this haste and false economy. I renew the charge of the emasculation of a paper presented by a New York veterinarian, that has since been published by the *Journal* as submitted to the association, and its comparison will need no further comment.

From more than a half dozen sources there has followed complaint and criticism of the way the discussion has been edited, and there should cease forever the method that has prevailed for several years of imposing upon those who have participated in the discussion, the correction of the stenographer's notes during the sessions of the convention. This system forces members to protect themselves as to what is to appear as their views or expressions, to edit the same, and at the same time to attempt to keep in touch with the convention proceedings or to retire from the hall and go over the notes under the most disadvantageous circumstances and thus lose much that they had traveled hundreds of miles to participate in. Keep this up and we will find many remaining at home who are too valuable to lose, or they will remain silent in their seats rather than to injure their scientific standing before the world, to gratify the egotism of one, who, Czar like, declares this the only way to publish the scientific annals of the profession's progress. This has been true of every volume published, and the peanut economy gloated over by the chairman would be more fitting to the exactions of a cheap grocer than a scientific body.

Very respectfully yours,

W. Horace Hoskins.

In one day recently more than 5000 horses were sold at public auction in the yards at Sioux City, Iowa. These horses were all sold by one firm, which also made a record of disposing of upwards of 12,000 horses in one week. They were all range horses, and the prices varied from $10 to $50. Thousands of visitors were attracted by the spectacle of so many horses at one point.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

PROGRAMME OF THE THIRTY-SEVENTH ANNUAL MEETING, TO BE HELD AT DETROIT, MICH., SEPT. 4, 5 AND 6, 1900.

Headquarters.—Russell House, corner Woodward Avenue and Cadillac Square. There are numerous hotels in the immediate vicinity of the Russell House, and the tastes of the guests may be easily suited in style and price. If members and visitors will communicate with Dr. S. Brenton, Chairman of the Local Committee of Arrangements, 121 W. Alexandrine Ave., Detroit, Mich., stating full particulars of the accommodations they may wish, all arrangemenrs will be made in advance.

Place of Meeting.—Large Convention Hall of the Russell House, Woodward Avenue and Cadillac Square.

Clinics.—Detroit Veterinary Sanitarium, rear 121 W. Alexandrine Ave., Wednesday and Friday mornings, from 8 to 10.

Officers of the Association.—President, Leonard Pearson, of Pennsylvania; Vice-Presidents, J. F. Winchester, of Massachusetts; S. Brenton, of Michigan, and H. L. Ramacciotti, of Nebraska; Secretary, S. Stewart, of Kansas; Treasurer, Wm. Herbert Lowe, of New Jersey.

Committees.—Executive—Tait Butler, Chairman; D. E. Salmon, W. Horace Hoskins, M. H. Reynolds, A. W. Clement, A. T. Peters, Roscoe R. Bell, and the officers *ex officio.* Finance—Lemuel Pope, Jr., Chairman; M. Stalker, G. A. Johnson. Publication—M. H. Reynolds, Chairman; R. P. Lyman, Roscoe R. Bell, John J. Repp, S. Stewart. Intelligence and Education—W. H. Dalrymple, Chairman; James Law, N. S. Mayo, John W. Adams, A. H. Baker. Diseases—C. A. Cary, Chairman; James B. Paige, E. M. Nighbert, John P. Turner, M. E. Knowles. Army Legislation—D. E. Salmon, Chairman; R. S. Huidekoper, M. Stalker, W. Horace Hoskins, A. W. Clement. Resolutions—L. H. Howard, Chairman; Wm. Herbert Lowe, L. A. Merillat, C. E. Cotton, W. B. Niles.

The details of the coming meeting of the American Veterinary Medical Association are about completed, and it would seem that nothing was lacking to make this the banner meeting of the association. The Local Committee of Arrangements has made excellent and complete preparations to receive the veterinarians of the country and treat them most royally. And it is expected that the ladies will accompany the veterinarians, for special arrangements have been made for their entertainment.

Special meetings of the Finance Committee, Publication Committee, and Executive Committee will be held at the Russell House, on Monday afternoon, September 3. The regular session of the association will convene, at 9 A.M., Tuesday, September 4th. The Mayor, the Hon. William C. Maybury, will deliver the address of welcome, the response to be made by Dr. W. Horace Hoskins.

THE LITERARY PROGRAMME

will include the following papers:

"Labor, Rest and Confinement," by Dr. W. L. Williams, Ithaca, N. Y.

"Relation of Veterinary Medicine to the Public Health," by Dr. William Herbert Lowe, Paterson, N. J.

"Psoroptes Communis Equi and Bovis in Montana and N. W. Territory," by Dr. M. E. Knowles, Helena, Mont.

"Remote Effects of Drugs," by Dr. L. A. Merillat, Chicago, Ill.

"Examining and Licensing of Stallions for Stud Purposes," by Dr. J. I. Gibson, Denison, Ia.

"The Relation of Lymphatics to Meat Inspection," by Dr. Tait Butler, Indianapolis, Ind.

"Notes on the Tuberculin Test in Wisconsin," by Dr. G. Ed. Leech, Milwaukee, Wis.

"Antiseptic Therapeutics," by Dr. J. F. Winchester, Lawrence, Mass.

"Rabies," by Dr. D. S. White, Columbus, Ohio.

"Urinalysis in Veterinary Practice," by Dr. Pierre A. Fish, Ithaca, N. Y.

"Veterinary Progress in Michigan," by Dr. William Jopling, Owosso, Mich.

"Spavin, its Etiology and Treatment," by Dr. J. W. Martin, Kankakee, Ill.

"Inoculation against Texas Fever," by Dr. J. W. Connaway, Columbia, Mo.

"Snakes, Venoms and Antidotes," by Dr. E. M. Ranck, Philadelphia, Pa.

"Obstacles to Enforcing Regulations Requiring Tuberculin Test in Interstate Cattle Traffic," by Dr. Austin Peters, Boston, Mass.

"Practical Antiseptics," by G. A. Johnson, Sioux City, Ia.

"Control of Cattle Ticks," by Dr. Cooper Curtice, Raleigh, N. C.

"Difficulties in the way of Municipal Meat Inspection in the South," by Dr. C. A. Cary, Auburn, Ala.

"Experimental Tuberculosis, Human and Bovine, in Domestic Animals," by Dr. R. R. Dinwiddie, Fayetteville, Ark.

THE CLINICAL PROGRAMME.

A series of surgical clinics will be held on Wednesday and Friday mornings at the Detroit Veterinary Sanitarium, rear 121 W. Alexandrine Ave. The clinics will begin promptly at 8.00 o'clock and continue two hours. A number of well-known surgeons expect to be present and demonstrate one or more operations each. The list of clinicians includes: Dr. L. A. Merillat, of the McKillip Veterinary College; Dr. W. L. La Baw, of the Veterinary Department of Harvard University; Dr. W. L. Williams, of the New York State Veterinary College; Dr. A. H. Baker, of the Chicago Veterinary College; Dr. J. W. Adams, of the Veterinary Department of the University of Pennsylvania; Dr. H. D. Gill, of the New York-American Veterinary College; Dr. R. C. Moore, of the Kansas City Veterinary College.

A large variety of cases requiring surgical interference will be provided by local veterinarians, the kinds of cases which practitioners are often called upon to treat, and which frequently prove troublesome, such as fibroma of the elbow, tumors of head and face, roaring, crooked tail, lameness due to diseases of the extremities, etc. The following special operations have been promised:—Ridgling castration under antiseptic precautions with expectation of healing without suppuration, by Dr. W. L. Williams; arytenoideraphy for cure of roaring, by Dr. L. A. Merillat; operation for tumor on elbow (shoeboil), by Dr. W. L. LaBaw; immediate and permanent closure of alveolar opening into maxillary sinus following removal of tooth, by Dr. R. C. Moore.

PROGRAMME OF ENTERTAINMENT.

Tuesday, *September 4.*—Morning: Visit to Convention Hall to witness the opening excercises. *Afternoon :*—Trolley ride to Palmer Park and visit to ex-Senator Palmer's celebrated Log Cabin.

Wednesday, *September 5.*—Morning: Visit to the Detroit Museum. Afternoon: Ladies will be entertained at luncheon by Mrs. S. Brenton, at her residence, 121 W. Alexandrine Avenue.

Thursday, September 6.—Morning: Carriage ride about the city, visiting Belle Isle Park and Water Works Park. Evening: Theatre party.

Friday, September 7.—Visit to Parke, Davis & Cos'. Laboratory, where a light luncheon will be served; from there the trolley will be taken to the steamer, giving the members the most delightful sail to New Vienna, up the St. Clair River, where a "fish and frog supper" will be tendered all the visitors by the local association.

RAILROADS, ETC.,

The railroads have granted the usual excursion rate of full fare for the going trip and one-third fare for the return, on the certificate plan. This rate ought to insure a large attendance from the large area of which Detroit is the centre. Eastern veterinarians, who have enjoyed a most wonderful increase in practice, and are wondering how they can leave their businesses, should remember that it will be profitable to themselves and their patrons to gather with veterinarians from all parts of America to compare notes and learn from each other's experiences.

Veterinarians living in the vicinity of New York City, Philadelphia, Baltimore and Washington, can reach Detroit as quickly and as cheaply as those living in the Missouri River Valley, and they should not hold that it is too far for them to go to this meeting of the A. V. M. A.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

Arrangements are about completed for the tenth annual meeting of this society, which convenes at Ithaca, Sept. 12 and 13, and there seems now no possible doubt but that the Empire State is to have the best meeting ever held by a local organization within its borders. Letters to various officers from every section of the State foretell a large attendance, and this being assured there can be but little question that the important programme detailed herewith will insure unflagging interest and a profitable meeting. The Committee of Arrangements, headed by Dr. W. L. Williams, ably seconded by such men as Drs. James Law, Charles Cowie, J. A. Genung, and Secretary Morris, have completed a schedule that will afford the greatest amount of innocent pleasure without diverting attention from the educational programme. For the first time the clinical feature will be introduced at the meetings of this association, but it will be in the nature of an addition, and not a substitute, as the hours assigned the surgical clinics will encroach but little upon the regular programme.

The papers announced up to date are as follows :

"Metritis," by J. A. Bell, V. S., of Watertown.

"Spaying of Mares as a Remedy for Vice," by A. H. Ide, V. S., of Utica.

"Rabies," by Prof. Wilfred Lellman, of New York City.

"Castration by Tortion," and demonstration of a casting method, by Charles Cowie, M. R. C. V. S., of Ogdensburg.

"Swine Diseases in Clinton County," by J. A. McCrank, D. V. S., of Plattsburgh.

"Acute Indigestion ; Its Right and Wrong Treatment," by Wm. B. Switzer, V. S., of Oswego.

"Clinic and Microscopic Observations on a Case of So-called Hermaphroditism in the Horse," by Profs. S. H. Gage and W. L. Williams, of Ithaca.

"The Uses of Small Animals for Purposes of Diagnosis" (with demonstrations), by Prof. Veranus A. Moore, of Ithaca.

"The Clinical Features and Therapeutics of the So-called Botryomycosis," by Prof. W. L. Williams, of Ithaca.

"Results of Histologic and Bacteriologic Study of So-called Botryomycosis," by Prof. Veranus A. Moore, of Ithaca.

"————," by Robert W. Ellis, D. V. S., of New York City.

"————," by E. B. Ackerman, D. V. S., of Brooklyn.

"————," by Dr. Darby, of Fort Plain.

The surgical clinics will be especially valuable and interesting, as the facilities for operating are exceptionally good. Chairman of Arrangements Williams is taking an absorbing interest in this part of the programme, and writes under date of July 16 as follows : "We are planning for a thorough clinic, illustrating useful operations, with simple methods of confinement, and expect to demonstrate the spaying of mares, cows, bitches, and cats : the castration of cryptorchids, caudal myectomy for gripping of the reins, the various neurectomies and Dr. Merillat's operation of arytenoideraphy, together with demonstrations of the methods of confining for operation by operating tables and stocks, with anæsthesia and antiseptics. A number of operators have signified their intention of taking part in this programme, with the subjects yet unannounced." Among those likely to take part in the clinics are: Drs. W. L. Williams, Charles E. Clayton, Robert W. Ellis, H. D. Gill, Charles Cowie, E. B. Ackerman, George H. Berns, C. E. Shaw, C. R. Perkins, G. T. Stone and B. A. Gallagher.

The Ithacans ask that the guests be turned over to them from about 6.30 P.M. of the first day to be at their mercy until 11 P.M., and while we cannot guess what is in store for the visitors there can be little doubt but that they will be pleasantly entertained. The ladies of Ithaca will see that visiting ladies are comfortably taken care of, and there will be plenty to keep them from becoming lonesome.

For those who desire, student rooms can be secured within five minutes' walk of the convention room, and meals can be obtained on the European plan, thus making the sojourn very inexpensive.

It is desired to call the convention to order promptly at 9 A.M. on the first day. Visitors from New York City and adjacent territory could leave on Tuesday evening at 9.30 to 10 via the Lehigh Valley or the D., L. & W. road, arriving at Ithaca at about 7 A.M., Wednesday. Those from Albany could get the same train at Binghamton, and those in the district between Albany and Buffalo on the New York Central could go by two or three routes, arriving in Ithaca from 8.40 to 9.30 A.M., while Buffalonians can leave at 6 on the previous evening and arrive at 10 P.M.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

The twenty-fourth regular meeting convened at the Y. M. C. A. Building, St. Joseph, Mo., on June 25, 1900, the regular officers, Dr. John Forbes, President, and Dr. John B. Wright, Secretary, in their respective places, and with the following members, visiting veterinarians and others present: Drs. R. C. Moore, S. Stewart, Charles A. Monney, H. C. Babcock and J. W. Parker, of Kansas City; H. V. Goode, E. J. Netherton, H. J. Washburn, J. A. Sloan, J., E. Blackwell, Charles E. Steel, Ripley and Lockwood, of St. Joseph, Mo.; G. R. Conrad of Sabetha, Kans., John Ernst of Leavenworth, Kans., and L. D. Brown of Hamilton, Mo.

During the afternoon an interesting surgical clinic had been held at Dr. E. J. Netherton's veterinary hospital, Drs. Steel and Netherton performing a variety of creditable operations.

The Board of Censors reported favorably on applications by Dr. Charles E. Steel and Dr. Joseph W. Parker for membership, and they were accordingly elected active members.

The following officers were chosen for the ensuing year: Dr. John Forbes, reëlected President; Dr. L. D. Brown, First Vice President; Dr. John Ernst, Second Vice President; Dr. J. W Parker, Secretary and Treasurer; Drs. J. A. Sloan, E. J. Netherton, C. E. Steel, J. B. Wright and R. G. Conrad, Board of Censors.

The retiring Secretary-Treasurer, Dr. Wright, submitted a report of the business and condition of the association. The report shows regular meetings well attended, valuable papers contributed, and that the association is in a thriving condition.

The literary programme of the evening was as follows: A paper on "Education of Lawmakers,"* by Dr. J. W. Parker, being a plea for united action in the present campaign and with the legislative bodies of Missouri, Iowa and Kansas, for adequate veterinary laws. The discussion was led by Dr. S. Stewart, who ably supplemented the thoughts advanced by the essayist. General discussion, participated in by nearly all present, and at the close of the discussion Dr. E. J. Netherton offered a motion that the President appoint a committee of five to coöperate with like committees of the veterinary associations of Missouri, Iowa and Kansas, with a view of securing better veterinary legislation. Being duly seconded, it was so voted, unanimously. The President appointed Drs. Stewart, Parker, Netherton, Moore and Goode.

Dr. J. A. Sloan presented a well prepared paper on "Healing of External Wounds,"* dealing especially with the processes involved. Discussion led by Dr. H. J. Washburn, and participated in by Drs. Moore, Stewart, Steel, Netherton, Parker and Lockwood.

Dr. R. C. Moore read an instructive paper on "Defective Eyelids,"* restricting it to congenital malformations. The discussion, which was led by Dr. C. E. Steel, brought out many interesting and instructive points.

The next meeting of the Association will be held at the Kansas City Veterinary College, 1406 Holmes Street, Kansas City, Mo., September 17th, 1900, and a sufficient number of papers have already been promised to guarantee an interesting programme.

JOSEPH W. PARKER, *Secretary.*

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* All of the papers have been received and will be published as rapidly as possible.—ED.

ALUMNI ASSOCIATION A.V.C.—President Robert W. Ellis has made the following appointments upon the Executive Committee of this association for 1900: W. Horace Hoskins, '81 (chairman); Charles S. Atchison, '98; Harry E. Bates, '89; Charles E. Clayton, '93; Roscoe R. Bell, '87; William J. Coates, '77; Theodore A. Keller, '92. With these active members of the association upon the Executive Committee, reinforced by the *ex-officio* members (the present officers) there should be sufficient and competent material to keep an interest alive among the alumni of the A. V. C.

NEWS AND ITEMS.

IF Eastern veterinarians find the trip to Detroit impossible, compromise by a visit to Ithaca, Sept. 12 and 13.

"I AM GLAD that the REVIEW still leads, and may its shadow never grow less."—*W. L. West, V.S., Belfast, Me.*

MISSOURI AND KANSAS now require the tuberculin test for their cattle by qualified veterinarians.

OUR E. C., the *Journal*, has a "Department of Canine and Feline Medicine and Surgery," conducted by Cecil French, D.V.S., of Washington, D. C.

DR. GEORGE H. BERNS, of Brooklyn, N. Y., spent the greater part of June at Sharon Springs, where he was taking baths for the relief of his only enemy—rheumatism.

DR. H. F. STEELE, formerly of New York City, is stationed at Santiago, Cuba, in charge of all the Quartermasters' horses and mules not assigned to duty, in addition to the hospital.

H. C. MOORE, of the veterinary firm of Moore Bros., Albany, is dead. They were extensive advertisers of veterinary remedies.

DR. E. M. HEATH, of Winsted, Conn., graduate of the Chicago Veterinary College, class of 1897, died May 6, of tuberculosis. Deceased was a member of the American and Connecticut Veterinary Medical Associations.

PROF. JAMES MCCALL, of Edinburgh, Scotland, is conducting a series of experiments in the treatment of glanders upon twenty-seven horses furnished him by the Glasgow Tramways Company.

A PATENT BRANDING MACHINE, employing an indelible fluid, instead of burning the hide of animals, is said to be a success, after extensive experimenting upon Wyoming range animals.

OFFICIAL STATISTICS show that Great Britain has sent 91,600 horses to South Africa for the use of the army operating there. The horses have been bought in the United States, Canada, the Argentine, Syria and indeed wherever they could be had for reasonable figures in any quantity.

IOWA VETERINARY EXAMINING BOARD.—Governor Shaw, of Iowa, has made the following appointments to constitute the Board of Veterinary Examiners under the recent law regulating the practice of veterinary medicine in that State: Drs. S. H. Johnson, of Carroll; H. E. Talbott, of Des Moines, and W. A. Heck, of Maquoketa.

THE statistics issued by the Government indicate that at Jan. 1, 1900, the chickens, ducks, geese, turkeys, etc., in the United States had a value of $500,000,000. The number of eggs laid were estimated at 1,504,000,000 dozen—a sum too vast for the comprehension of the human mind.

THE American jockeys are showing their English cousins how to get speed out of race-horses. On two occasions this season the little handful of American riders won every race run at one of the meetings, in some instances finishing one, two, three.

CHARLES BACHMAN, former owner of the famous Stony Ford Stock Farm, and breeder of some of the most famous trotting horses of the American turf, died recently of heart disease. Wm. C. Whitney has purchased Stony Ford and will breed thoroughbreds upon a large scale.

IT is estimated by the automobile manufacturers that it costs fifteen cents a mile to furnish the large pneumatic rubber tires as required by vehicles the size of a coach. Liverymen compute that a coach kept for public hire will average 25 miles a day. At this rate it will cost $3.75 per day for rubber tires alone; this is not half of the expense necessary to operate one.

AT one of the New York markets where Hebrew dealers buy poultry and vegetables a system of poisoning the horses used by the dealers has been going on until some sixty have died. Dr. George Cohen, of Division Street, treated a number of the cases, and from the symptoms presented gave the opinion that arsenic was being used. Professor Friedburg, the chemist, being called to analyze the contents of the stomach of a number of the cases found arsenic in each one.

THE CAPSULE METHOD OF IMPREGNATION seems to be getting popular, as orders for capsules have recently been received in this country from England, France and other countries. Much success is reported by breeders who have employed it, one claiming 23 successes in 24 attempts. The method is very simple: When copulation has occurred the overflow semen is scraped from the vagina upon withdrawal of the penis by being collected into the capsules and sealed. A capsule or two is then inserted into the uterus of a mare in œstrum, and few failures are said to occur.

ANCIENT THERAPEUTICS.—Those who fancy the "good, old-fashioned remedies" of our forefathers ought to try the following, which was given in public print in England in 1681. The trouble for which the cure is recommended is common enough still, in all conscience. Here is the formula: "The master medicine of all medicines for a back-sinew strain, or any grief, pain, straitness, shrinking or numness of joynts or sinews: Take a fatte sucking Mastive whelp, slay it and flay it and bowel it; then stop the body as full as it can hold with gray snails and black snails, then waste it at a reasonable fire. When it begins to warme, baste it with six ounces of the oyl of spike made yellow with saffron, and six ounces of the oyl of wax. Then save the drippings and what moysture soever falls from it, whilst any drop will fall from the whelp, and keep it in a gally-pot. With this oyntment anoint the strain and worke it in very hot, holding a bar of iron before it. And thus do morning and evening till the cure be finished."

EDITOR HOSKINS, of the *Journal*, is one of the most versatile and insatiable of veterinarians, ever on the alert for new fields to conquer. He is the head of a large private practice in Philadelphia; editor and publisher of the *Journal of Comparative Medicine;* publisher of several text and reference works connected with the veterinary profession; professor of jurisprudence at the University of Pennsylvania; president of the Atlantic Wave Motor Co. (by which the power of the white caps is to be utilized for the generation of commercial electricity); an officer of the Atlantic City Artificial Ice Company; a cold-storage warehouse in the same city; an active worker and regular attendant upon all veterinary medical associations within a radius of one hundred miles of the City of Brotherly Love; besides having time to engage in the active politics of his native city. Surely he is a worker of energy and versatility, and deserves both riches and renown in exchange for the expenditure of so much vitality.

A PROLIFIC BLOODHOUND.—Dr. A. E. Metzger writes the REVIEW as follows: "I have to report a bloodhound bitch that whelped seventeen (17) living puppies in November last, which I consider something phenomenal, and would be glad to hear if any member of the profession has anything to report that equals it." [While the litter referred to is large, we do not consider it phenomenal, as it has frequently been exceeded. The record was for many years held by a collie bitch in Scotland, who gave birth to 23, but recently it was reported from Mr. J. Pierrepont Morgan's Cragston kennels that one of his collies had borne 27. Within a few weeks the New York daily papers were claiming a record for the prize-fighter Corbett's setter, which had given birth to 17 pups.—EDITOR.]

"ENCLOSED please find money order for three dollars ($3.00) to renew my subscription for nineteen hundred. Have only read the REVIEW for one year, but you may count on me as a regular subscriber from now on."—*R. R. Hammond, Le Mars, Iowa.*

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A Veterinary Practice, consisting of a well-established Hospital, situated in one of the most celebrated towns in America. The right man ought to easily do a business of at least $5000 a year, as the present owner has averaged $7000 a year for ten years. The hospital contains 10 large standing stalls, and 3 big box stalls; a very large carriage-house, operating room, office, medicine room, and seven nice large living rooms over the office, with all up-to-date improvements, and a very nice up-to-date ten-room cottage; all property in first-class condition. A grand chance for the right man. Terms for sale or lease will be made satisfactory. Population 18,000; for about four months it is from four hundred to six hundred thousand. No other qualified Veterinarian in the county. Address C. S. T., care AMERICAN VETERINARY REVIEW.

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Can make money for themselves and do much good to their profession by getting up Subscription Clubs for the REVIEW. Write us for club rates and full information.

REVIEWS FOR EXCHANGE.

I have these duplicates: Vol. XVIII, July (1894); Vol. XV, April and May (1891). I need the following: Vol. XIX, September and October (1895); Vol. XVII, January (1894). Would like to exchange with some one having duplicates, etc. HUGH THOMSON, V. S., Sharbona, Ill.

NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the AMERICAN VETERINARY REVIEW. Any one having an extra copy of that number please address H. D. STEBBINS, V.S., West Winfield, N. Y.

BACK NUMBERS REVIEW FOR SALE.

Volumes 2, 4, 8, 9, complete); April, '79, '81, '82, '83; May, '79, 81; June, '79, '81; July, '79, '81; August, '79, '81, '83; September, '79, '81, '83; October, '79, '81; November, '79, '81, '83; December, '81, '82, '83; January, '80, '82, '83, '84; February, '80, '83, '84; March, '83, '84.

Apply C. E. C., 141 West 54th street, New York City.

AMERICAN VETERINARY REVIEW.
SEPTEMBER, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

ILLEGAL PRACTICING IN NEW YORK STATE.

The fact is incontestable that veterinary medicine and surgery as a science and as a profession has gone forward more rapidly in America than history will disclose in any other country where it is established. The chief factor in the production of this result is the American veterinarian himself. Being the exponent of a noble cause—one which appealed to the hearts of men, aside from its commercial advantages—he was strong in his convictions that his place was among the advanced and learned sciences, and he threw into the struggle the indomitable energy and determination which marks American character. Under such conditions it was practically irresistible; and what fifty years has witnessed is but the first chapter in the history of the advance. The representatives have been progressive and aggressive. They have formed associations, discussed their needs, appointed committees of live workers to carry out their wishes, and these men have not been afraid to make their wants known to the law-making authorities, whose rebuffs but strengthened their determination to overcome all obstacles. It made no difference whether the law-giving power resided in municipal, state, or national legislation; they attacked the source with equal vigor and intelligence, and if they failed in their first attempt it simply meant a renewal of the efforts; should failure again be their portion, additional pressure was brought to bear, until final success was secured.

New York veterinarians have not been the least active and insistent in such matters; in fact, while the veterinarians of other States were equally clamorous in their efforts to place veterinary medicine upon the firmest legal foundation, it may be truthfully said that New York was ever the leader in all such movements. She it was who secured the first practice act, and, while it has been often assailed (principally by those who put forth the least exertion to secure any law) for the laxity of its provisions, it has been latterly so strengthened as to be practically without serious objection—if faithfully lived up to. The enforcement of the penalty clause of our law has ever been a difficult problem, on account of which offenders have become so numerous as to cause many to unthinkingly assert that the law itself is inadequate. Sober reflection, however, is quite sufficient to convince any intelligent person that there is not a law of the land which is not inert and useless unless the arm of justice intervenes to have its provisions fulfilled. If a burglar robs a bank it is admitted that he has violated a law; but with no one to hunt him down and bring him before the bar of justice for punishment the law is a dead letter. So with our law; when it is violated with impunity, it becomes of no value in a practical sense. It is true, a few individuals in different parts of the State have undertaken at various times to hale before the courts gross cases of violation of the statute, and whenever vigorously pursued conviction has followed. But such instances have been so rare and unsystematic that offenders have become emboldened, until now they neither ask permission nor offer apologies. The editors of the REVIEW have received many letters recently calling their attention to individuals practicing in various sections of the State without having the legal right to do so. In one instance it is a graduate of a two-year school who, ignoring the Regents' requirements for registration, simply puts up his sign and begins to practice; in another, a person attends a legitimate school the required three sessions, but fails to pass the faculty examination, but starts into business just the same as though he had won their approval, as well as that of the Board of Examiners; a third attends college one year, and by some unexplained method registers in the clerk's office of the county of his residence on the strength of a "diploma" of an alumni association, and competes for business with men who have fulfilled every requirement; and yet another individual matriculates at a veterinary school, attends a few lectures, and decides that college life is a waste of time, for he quits it, mandamuses the county clerk, who reopens registry books closed for years, for the reason that a physician's certificate states that when the books were open the applicant was prevented by sickness from being registered. This applicant swore that for five years prior to the closing of the books in the early nineties he was a practitioner of veterinary medicine, while a common-sense glance at the petitioner by the judge who gave the order would have convinced him that he must have made calls in the first years of his practice dressed in knickerbockers and a Lord Fauntleroy belt, as he is but a young man at the present date. The latest offense which has come to our knowledge is the case of a farmer who registered with his county clerk in 1899 and began practicing just as though no law of the State was being violated.

These violations appear to be multiplying with great rapidity, chiefly for the reason that but few prosecutions have been undertaken. Thus it is that our law has become practically a dead one, although it is a sovereign statute, and punishment is bound to follow conviction. The law is mandatory, and all that is requisite to enforce its penalties is to prove the case before a court of competent jurisdiction. The question is, how can this best be accomplished? The REVIEW believes that the individual members of the profession should purify their own districts by boldly challenging the right of any man to practice this profession who has failed to comply with the requirements of the State law governing it; and, further, it would appear that any veterinarian who fails to do so is aiding and abetting such violator and is breaking faith with the laws of good citizenship and the welfare of the profession of his adoption. Just here is the opportunity for local associations to exert one of their functions for the benefit and the purity of their profession; and in the populous Empire State the whole territory might be covered by such organizations. For instance, the metropolitan district would be in charge of the Veterinary Medical Association of New York County; the adjoining districts up the river would fall to the jurisdiction of the Westchester County Society; further up the State the Genesee Valley Association would look after transgressors, while local organizations might be formed in thickly populated districts with the same object in view. These associations, operating in harmony with the State Society, could police the entire commonwealth, so that in a very short time such a circumstance as a man attempting to practice without a legal right to do so would be extremely rare.

At the approaching meeting of the State Society at Ithaca this question will be brought forward for discussion, and it is hoped that those gentlemen who have written to the REVIEW complaining of such instances will be present to assist in the formulation of a plan to eliminate such occurrences by prosecuting the offenders.

DR. M. H. REYNOLDS, State Veterinarian of Minnesota, has received the appointment of dean of the Iowa Agricultural College at Ames. He graduated from this college in 1889, and engaged for a few years in private practice, but finding research and investigation more to his tastes soon drifted into State medicine, and accepted appointment in Minnesota, where he has labored ever since—so assiduously, so intelligently, and with such dignity and success that he has attracted the attention of the whole country and has brought the control of animal diseases in his State up to a point where the example serves as a model to other States. The Iowa profession are rejoicing that their distinguished brother is to be returned to them, feeling that under his leadership their interests and standing are to be advanced through his intelligent counsel and efforts. The good work already accomplished by the Iowa College is certain to be continued under his guidance.

"REPORTS OF CASES" are very interesting in this number. Dr. Martin tells of the difficulties both of diagnosis and treatment of torsion of the uterus in a mare. Dr. Walter Shaw describes the unusual operation of castrating an elephant, and shows how a defective instrument robbed him of a successful issue. Dr. Ellis deals with a somewhat less ponderous patient, but is more successful than either of the other surgeons, for he performs the radical operation for hernia in a cat with perfect recovery. These are the kind of case reports that do good. The authors give the details of their procedures, including the weak points, so that all may profit by their experiences.

DR. ADOLPH EICHHORN, of the American Veterinary Hospital, New York, has accepted the post of editor of "German Review" for this publication. He is a hard student, an enthusiast in his profession, and REVIEW readers may anticipate being kept in close touch with all that transpires of interest in the Teutonic tongue.

DO NOT FORGET the annual meeting of the New York State Society, which convenes at Ithaca, Sept. 12, and lasts two days. The surgical clinic will be a special feature, while papers on absorbingly interesting subjects will be offered for discussion. A large attendance is assured, with a big addition to the membership.

IF you were prevented for any reason from attending the great meeting of veterinarians in Detroit, you may be sure that the REVIEW will give you a faithful account of all that occurs there in its October issue.

WE COMMEND an article, elsewhere printed, by Dr. Joseph W. Parker, of Kansas City, entitled "Educating Lawmakers," as being of the right ring and up-to-date.

ORIGINAL ARTICLES.

OVARIOTOMY IN THE DOMESTIC ANIMALS.

Presented to Cornell University by Charles Henry Jewell,
for the Degree of Doctor of Veterinary Medicine,
June, 1900.

Under the Direction of W. L. Williams, Prof. of Surgery, at N. Y. State Veterinary College, to whom acknowledgment for valuable assistance is given.

(*Concluded from page 360.*)

The operation in the sow is practically the same as in the bitch and cat, remembering that the cornua are long and flexuous and floating freely among the convolutions of the small intestines. After securing the horn one can draw the ovary out and remove.

The operation in yearling heifers and calves is of necessity performed through the abdominal walls. The animal is cast and secured, the hair clipped from the operating field, the parts washed, shaved and thoroughly disinfected ; then an incision is made according to the mode of operation selected, some operating through the flank, while others prefer the linea alba. I prefer and shall describe the flank operation. An incision is made through the skin and skin muscle midway between the external angle of the ilium and the last rib, and then the muscular bundles of the external and internal muscles separated consecutively with the scalpel handle or other blunt instrument, and then puncture or rupture the peritoneum large enough to admit the hand ; this done, the hand is passed into the abdominal cavity, locating one, usually the uppermost cornu, and tracing it to the ovary, grasp it, pass the long curved scissors through the wound and cut off the gland, making sure to retain the same and bring it to the outside, and repeat the operation upon the other in the same manner. The incision should be sutured with some strong material, linen or silk, and dressed antiseptically. Should it be in the season of flies guard against the attacks of their larva by accurate suturing and antisepsis.

Dangers Involved in the Operation.—In the cow and mare there is a possibility of wounding some important arteries of the pelvic region, namely, the external and internal iliac or the posterior aorta; should this be done the animal will die in a few minutes. Such losses rarely occur. This will not happen if care be exercised when making the incision. Another danger in both mare and cow is the puncture of the rectum by a misdirected incision, which would tend to fatality if the peritoneal sack be opened. In the cow we have the danger of puncturing the rumen, which would give serious trouble and likely lead to death of the animal. In the smaller animals it is an easy matter to grasp the posterior aorta or one of the iliac arteries and rupture it. In all animals there is danger of infection being carried into the abdominal cavity and causing peritonitis, which may terminate fatally.

The bitch, cat and pig are not so liable to infection as the larger animals, but such are not immune, and hence great care should be exercised in maintaining strict asepsis in operating.

Results Obtained from Spaying Mares.—Since opening the New York State Veterinary College in September, 1896, to the present date (March 24, 1900), there have entered in the clinics twenty-four mares for spaying, all of a vicious disposition, and a large number more markedly so at the period of œstrum. Of these cases which have been carefully observed a large number, probably seventy-five per cent., have been rendered peaceable, docile and valuable work animals, from previously almost worthless mares. The other twenty-five per cent. operated upon have in the majority of cases been rendered less vicious. In cases in which the animal persistently catches and tightly holds the reins with the tail the operation of caudal myectomy conjoined with spaying seems to have markedly beneficial results, completely obviating the difficulty. The results obtained at the New York State Veterinary College prove that in mares in which viciousness arises from the period of "heat," spaying is a specific, also in cases of diseased ovaries, such as cyst and cartilage formation which have been found in several nymphomaniac mares.

The animals spayed at the college clinic have not as a rule suffered any inconvenience, no loss of appetite, no rise of temperatnre, no emaciation or falling off in condition. Of the whole number operated upon, mostly by the students, only one fatality has occurred, that by wounding the iliac artery, the animal dying in the stocks. In one case only had we any serious trouble, and this came from an abscess of the rectum, which may have been from a wound made by the operator, or might have had a previous existence. The animal made a good recovery after giving enemata daily conjoined with antiseptics.

Of the cases brought to the clinics of the New York State Veterinary College, I will give the data as to reasons for operating, any conjoined operation, date of spaying and results.

Clinical No.	*Reasons.*	*Date.*	*Operation.*	*Results.*
314	Kicked when in "heat." Very vicious for years.	Dec. 16, '97.	Spaying and Caudal Myectomy.	Improved.
677	Kicked when in "heat" and caught rein with tail.	Apr. 16, '97.	Spaying and Caudal Myectomy.	Improved.
944	Kicked at period of "heat."	Apr. 3, '98.	Spayed.	Improved.
1014	Unpleasant to work at period of "heat."	May 2, '98.	Spayed.	Cured, very docile.
1022	Unpleasant at period of "heat."	May 17, '98.	Spayed and Caudal Myectomy.	Now very gentle.
1075	Vicious at time of "heat."	May 26, '98.	Spayed and Caudal Myectomy.	Improved.
1367	Constant kicker.	Nov. 16, '98.	Spayed.	No marked imp'ment.
1434	Kicked all the time (chondroma of ovaries).	Dec. 14, '98.	Spayed.	Now gentle.
1487	Kicked and constantly squealing when in "heat."	Dec. 28, '98.	Clitoris removed 2 yrs. before. Spayed.	No change. Now kind.

1585	Kicked during "heat." Would not work at such times.	Feb. 21, '99.	Spayed.	Improved, now kind.
1692	Kicked at period of "heat."	Apr. 1, '99.	Spayed.	Now kind.
1727	Kicked when in "heat."	Apr. 17, '99.	Spayed and Caudal Myectomy.	Now kind.
1818	Kicker, and worse at period of "heat."	May 13, '99.	Spayed.	Now kind.
1841	Kicker, worse at time of "heat."	May 23, '99,	Spayed.	No marked imp'ment.
1981	Kicker, worse at time of "heat."	Oct. 16, '99.	Spayed and Caudal Myectomy.	Now kind.
1999	Persistent kicker.	Oct. 23, '99.	Spayed and Caudal Myectomy.	Improved.
2072	Unpleasant to work, switching.	Dec. 1, '99.	Spayed.	Improved.
2143	Switcher and kicker.	Dec. 5, '99.		Fatality from incision into iliac artery.
2146	Switching and kicking at time of "heat."	Dec. 6, '99.	Spayed.	Improved.
2257	Kicker and habit of catching rein.	Feb. 12, '00.	Spayed and Caudal Myectomy.	Improved.
2272	Unpleasant animal to work.	Feb. 19, '00.	Spaying and Caudal Myectomy.	Of recent date, results not yet determined.
2274	Unpleasant animal to work.	Feb. 19, '00.	Spaying and Caudal Myectomy.	Of recent date, results not yet determined.
2286	Unpleasant to work, caught rein.	Feb. 27, '00.	Spaying and Caudal Myectomy.	Of recent date, results not yet determined.
2314	Unpleasant at time of "heat."	Mar. 12, '00.	Spaying.	Of recent date, results not yet determined.

Results in the Cow.—Of the animals operated upon which I have carefully watched it seems a well-established fact that spaying dairy cows which dairymem are not desirous of breeding is of benefit from a commercial standpoint. Such animals are peaceable when at pasture, give a steady flow of milk for a period varying from two to five years, and taking on flesh so as to be fit for the slaughter at any time. The operation as a factor in stimulating milk production and increasing the amount of butter fat does not hold true in our experiments upon two Holstein cows, property of the Cornell University farm, spayed November 22, 1899.

One was nine and the other five years old, both were large and in fine condition. The milk from each was weighed from day to day, before and after spaying, and tested once a week for the percentage of butter fat.

NO. I, NINE YEARS, CALVED SEPT. 6, 1899.

The weight of milk for	first	week	194.5	lbs.	% butter fat	3.2
" " " "	second	"	233.5	"	" " "	3.2
" " " "	third	"	242.8	"	" " "	3.2
" " " "	fourth	"	248.5	"	" " "	3.4
" " " "	fifth	"	250	"	" " "	2.7
" " " "	sixth	"	256.6	"	" " "	3
" " " "	seventh	"	288.8	"	" " "	2.9
" " " "	eighth	"	274.2	"	" " "	2.8
" " " "	ninth	"	268	"	" " "	3.2
" " " "	tenth	"	268.5	"	" " "	2.7

(*November 22, Spayed.*)

The weight of milk for	eleventh	week	217.5	lbs.	% butter fat	3
" " " "	twelfth	"	227	"	" " "	3
" " " "	thirteenth	"	223.4	"	" " "	2.9
" " " "	fourteenth	"	232.1	"	" " "	3.2
" " " "	fifteenth	"	231.8	"	" " "	3.8

Daily milk production previous and following.

Nov. 18, 1899		38.7	pounds.
" 19, "		38.6	"
" 20, "		39.9	"
" 21, "		38	"
" 22, "	(spayed)	36.8	"
" 23, "		18.3	"
" 24, "		28.5	"
" 25, "		31.9	"
" 26, "		33.9	"
" 27, "		32.6	"
" 28, "		35.2	"

NO. 2, FIVE YEARS OLD, CALVED OCT. 26, 1899.

Weight of milk for the first	week	177.7	lbs.	Fat	4.1	%
“ “ “ “ “ second	“	181.3	“	“	3.6	“
“ “ “ “ “ third	“	173.3	“	“	4.3	“

(*Spayed November 22.*)

Weight of milk for the fourth	week	168	lbs.	Fat	3.2	%
“ “ “ “ “ fifth	“	169	“	“	3.3	“
“ “ “ “ “ sixth	“	153.7	“	“	3	“
“ “ “ “ “ seventh	“	145.6	“	“	3.4	“
“ “ “ “ “ eighth	“	159.3	“	“	2.8	“

Daily milk production prior and following.

Nov. 18, 1899		27.2	pounds.
“ 19, “		23.8	“
“ 20, “		25.5	“
“ 21, “		29	“
“ 22, “	(spayed)	22.3	“
“ 23, “		16.5	“
“ 24, “		24.6	“
“ 25, “		22.8	“
“ 26, “		27.8	“
“ 27, “		28	“
“ 28, “		26	“

We see by the above data that on the day following the operation there was a decided falling off in milk production, but no great difference on the second day.

In my observations the operation does not increase the amount of daily milk production, but as it dispenses with the period of “heat,” we get a uniform milk flow, which is not the case with entire cows.

Any person accustomed to the care of dairy cows is aware of the fact that many animals fall off one-half or even more in the milk yield during the periods of œstrum, which means a considerable loss to the owner during the year. When the cow is spayed we not only do away with all trouble attending the period of “heat,” but the accidents and ailments attending gestation and parturition.

The operation in nymphomaniac cows is one of great value, as it completely destroys their sexual desires and renders them profitable dairy animals. One of these cows spayed by the college clinic has been in milk over two years and still yielding a good flow.

Spayed cows apparently make better mothers than the entire animals, taking kindly to calves of other cows placed with them.

The conclusions reached after carefully studying the results of my own experiments and the observations of others as recorded in the veterinary literature of the United States and Europe, are as follows :

Cows which have come to the age of decline and are not profitable as breeding animals, if spayed can be made profitable from the milk produced while fitting them for the slaughter. The operation is also indicated in the nymphomaniac cow. Careful tests, however, indicate that the value of this operation in dairy cows has often been exaggerated.

HEALING OF EXTERNAL WOUNDS.

By J. A. Sloan, V. S., St. Joseph, Mo.

Read before Missouri Valley Veterinary Medical Association, June 25, 1900.

The particular phase of the subject to be discussed in this paper is that relating to the pathological processes in the healing of wounds and with no particular reference to their treatment. The discussion will also be principally confined to wounds of such a size and condition as are healed by the visible formation of new tissue and less fully to those which heal by primary union. There are two reasons why this part of hypertrophy and regeneration of tissue is selected.

1. Because such wounds are of everyday occurrence and therefore important.

2. Because the subject is too vast to discuss in its entirety.

It is said that "a wound is a recent solution of continuity of the living tissues induced by some mechanical cause." Some writers hold that all wounds are on the outside surface of the body, involving an abrasion of the skin, but this will hardly cover contused wounds. While external influence may hasten or retard the process of repair they will not be considered except when suppuration intervenes.

The processes of repair apparently vary according to the severity of the injury, while in fact they are practically similar except in extent and length of time necessary to recovery.

The exceptions to this are two.

First: Those where there is such a trifling destruction of cells that simple regeneration of the essential surrounding cells is sufficient for repair.

Second: Where the wound is somewhat greater in extent but still within the capacity of the connective tissue to repair by hyperplasia and regeneration without the intervention of embryonic and granulation tissues.

By healing is meant the removal of foreign material from a wound and the replacement of the destroyed or degenerated tissues by new tissue. Hyperplastic and regenerative growth of tissue is ushered in by cell multiplication by karyokinesis and is inseparably associated with the phenomena of inflammation. In fact, so much so that it is impossible to consider one subject without involving the other. Proliferation occurs most readily when there is little inflammation present and only a slight exudate, for the presence of any irritant retards the process by increasing the inflammation and exudation and may lead to suppuration.

The ability to form new tissue lies in the proliferative faculty of the cells. These do not multiply under normal conditions, but when a wound is to be repaired some kinds of tissues proliferate with readiness and rapidity.

Hyperplasia and regeneration of tissue are by no means confined to the repair of wounds, for they always accompany productive or proliferative inflammation. It is found that in the connective tissues is a reserve force which is ready and convenient whenever the tissues surrounding a wounded area, whether due to injury, degeneration or necrosis, cannot repair the breach. If the injury is beyond the capability of the surrounding tissues to repair, the space is filled by connective neoplasia or scar tissue. Because inflammation is always present in these processes it has been called proliferative inflammation and it is present regardless of the presence or absence of foreign material. If proliferation is repeatedly interfered with, as, for instance, because of great irritation by pathogenic germs or external violence, the cells lose their power of regeneration and an ulcer is the result. On the other hand, proliferation in a healthy patient may be so active and extensive that exuberant granulations appear with a considerable thickening of the adjoining parts. At this stage anything that will reduce inflammation will check granulation.

Wounds are divided according to cause into: Incised, punctured, lacerated, contused, etc. In veterinary practice external wounds are generally infected. This condition it is impossible to avoid because of septic surroundings and the impossibility in many cases to apply a bandage.

Wounds are said to heal by first intention, second intention, granulation, etc. The reparative process is much the same in all of these, for in all there has been destruction of tissues and regeneration is necessary to repair. Therefore such a classification seems unnecessary except as a matter of convenience. There is a macroscopic difference in the healing of a wound whose edges are held in close apposition and whose changes are hidden from the eye, and that of a large, open wound where the granulations can be plainly seen, but practically the means of repair are similar.

Healing by first intention occurs in slight aseptic wounds where there is a little destruction of tissues, in incised wounds and where the edges can be brought in close apposition. If there is no foreign material to be eliminated there should be an almost imperceptible amount of inflammation present and very little exudate to be absorbed or otherwise disposed of. Union is then hastened by plastic adhesion of opposing edges by means of the serous exudate. This adhesion plays a passive part in regeneration of wounds and, as repair progresses, is absorbed. Adhesion has been mistaken for healing and desiccation of the exudate for formation of a scab. That this adhesion is not healing is proven in cases where pus germs have been enclosed.

In a day or two these germs in presence of excellent nutrition, proper temperature and moisture multiply with the formation of pus and the exudate softens and gives way. Immediate union is impossible. Adhesion may be sufficiently firm to require no bandage to keep the parts in apposition, but it is not healing.

The writer is convinced that plastic adhesion has taken place in wounds which have been said to have "healed in a few hours," or even in a " day or two " and not healing. This adhesion aids the reparative process by holding the edges of the wound in close apposition, preventing motion of these edges on each other and excluding foreign materials. The presence of any foreign material will prevent healing by primary union, because it becomes an irritant, setting up increased inflammation with its attendant phenomena of emigration of leucocytes and formation of pus. Even extravasated blood, if in appreciable quantities, becomes a foreign body and an irritant and furnishes a medium for the propagation of bacteria. In no instance is it possible for this extravasated blood to assist in the process of repair and it is a common mistake for veterinary surgeons to bind up a wound before hæmorrhage ceases. The blood, too, may form a clot in the wound, prevent all possible contact of opposing edges and thus give a cavity which later must be filled by granulation.

When a small, aseptic, incised wound is closed by sutures an exudate takes place from the suture openings. This is because the sutures have made a small, open wound with destruction of more or less tissue. It is nicely illustrated by a neat operation of plantar-neurectomy. If the injury is very slight new cells are soon formed to replace those destroyed, with little or no change in structure, and is the nearest possible approach to immediate union. In this case, the earliest signs of proliferation may be seen in about eight hours after infliction of the injury, and very readily seen after twenty-four to forty-eight hours. In wounds of a somewhat larger size there is infiltration of the surrounding tissues, exudate upon the cut surface, and later proliferation of connective tissue from the sound tissue through the infiltrated area and into the wound, which finally firmly binds the edges and constitutes healing by primary union. Proliferation of epithelium completes the process.

As an aid to primary union these steps should be observed:

First: Arrest and prevent hæmorrhage.

Second: To remove all foreign substances.

Third: Apply suitable bandages both to keep the parts in close approximation and also to prevent the entrance of pathogenic germs. About the shortest possible time for these wounds to heal under the most favorable circumstances is seven to eight days.

Healing by granulation, or so-called second intention, is seen in wounds where the changes are visible to the unaided eye and where there has been extensive destruction of tissue.

This process consists of three stages.

First: The formation of a deteriorated or embryonic tissue which develops into second. Granulation tissue, and

Third: Completes the repair by a further change into cicatricial tissue. This process is entirely competent to repair any wound or to make an uninterrupted continuity of tissues. The repair is not of normal tissue and there is a loss of function because of the intervention and usually the preponderance of the connective tissue. The normal tissues do not possess the ability to close up the wound.

Embryonic tissue consists largely of cells and blood vessels, and is never found except where the injury is beyond the ability of the surrounding tissues to repair it. The cells are mostly small, rounded in shape and infiltrated with leucocytes—mono and polynuclear—which have emigrated from the circulation. The number of leucocytes determines the intensity of the inflammation present and conversely the rapidity of recovery. The cells of embryonic tissue have been called proliferative, or formative cells, because they give rise to the future tissue. In the early stage of its development it depends upon the tissue from which it sprung for its support, but later blood vessels quickly develop for its sustenance and growth. The blood vessels proliferate by a process of budding or sprouting from the neighboring uninjured vessels, and develop rapidly with the formation of numerous loops, which give a reddish color to the tissue. About each loop is a collection of cells which give to the tissue a beady appearance. The rich, vascular supply favors a rapid cell growth and an abundant proliferation. From connective tissue cells, fibroblasts are formed, which change into branch and spindle-shaped cells, and later lie closely together, forming the bundles of fibres which constitute the cicatricial tissue. Granulation tissue is the next stage, and is developed from the embryonic by the formation of cellular elements similar to the parent tissues. Part of the cells are enlarged or hypertrophied tissue cells which undergo division and enlargement indefinitely, depending on the extent of the injury and favorable termination of the whole process. When it develops into granular masses it is popularly known as "proud flesh," and is a source of uneasiness to the layman. While it is confined to the cavity which it attempts to fill or does not project beyond the edge of the wound, no interference is necessary, as it is the proper and only means of repair. This tissue is also very vascular and is very easily injured, because it has no protective covering. The third stage is the development of granulation into cicatrical or scar tissue. This is accomplished through the formation of branched and spindle-shaped fibroblasts which unite into bundles. Proliferation of the epithelium has followed the filling up of the cavity as far as possible, and when it ceases the rest of the new tissue is covered by a dense layer of cicatricial tissue, or "scar." At this stage the scar is reddish in color, smooth, devoid of hair or glands of the skin and tender to the touch. With the formation of cicatricial tissue the reparative process is completed, although changes still occur. Contraction begins, causing atrophy of all its tissues. Blood vessels, nerves and connective tissues diminish and consequently the size of the cicatrix, and may lead to deformity and partial loss of function. It becomes of a dense, white appearance and approaches more and more to the tissues from which it springs. These latter changes may spread over a period of several months. At the risk of being tedious I will refer quite briefly to the important phenomenon of phagocytosis by means of which pathogenic germs are destroyed. It is held by some pathologists that phagocytosis begins with the emigration of leucocytes, but later is actively carried on by the phagocytes and fibroblasts, or cells of connective tissue origin. When only a few bacteria are present they may become a prey to the leucocytes, and if no other germs gain access to the wound infection will not follow. There is little doubt that this process plays an important part in the healing of wounds by preventing in part or entirely the multiplication of bacteria. This phenomenon is accomplished by the amœboid movement of the leucocytes, each cell enclosing a germ. The fibroblasts may close half a dozen cells, as leucocytes do the cause of infection or any other cells, living or inert. The bacterium may be retained until destroyed or carried into the lymphatic system and deposited in a lymphatic gland. Sometimes the bacterium is too virulent and destroys the leucocyte and so obtains its freedom. As phagocytosis tends to limit the multiplication of pathogenic germs and in that way prevents an increase in extent and intensity of inflammation, so its effect on regeneration will be appreciated when we remember that wounds heal most quickly when there is no infection, and but little inflammation present.

EDUCATION OF LAWMAKERS.

By Joseph W. Parker, D. V. S., Kansas City, Mo.

Read at Twenty-fourth Regular Meeting of the Missouri Valley Veterinary Association, St. Joseph, Mo., June 25, 1900.

Modern politics appeals to intelligence. A bureau of publication is now an essential feature of every successful political campaign. It has been said that the education of a child should begin three generations before it is born. To paraphrase, it might be said that the education of a lawmaker must begin with the people who elect him, or on whom he depends for further political successes. Whatever a large part of the people demand, their representatives must and will enact. Legislators are seldom far in advance of their constituency.

The concentrated primary aim of veterinarians, relative to needed legislation, therefore, must be to inform the public by precept and example that the profession is one which should be regulated by law—that the demand for legislation in these matters arises from the needs of the public. In the practice of veterinary medicine the interests of the patron and of the general public are involved. The immense value of domestic animals and their products, and the intimate relations existing between diseases of the lower animals and of man, justify and demand not only that those who are permitted to practice shall be required to furnish evidence of their qualifications, but laws to effectually control the spread of infectious and contagious diseases and for the supervision of the food supply of the public.

It devolves upon regular veterinarians to be the leaders in the campaign of political agitation and education, as by their training they are especially fitted to be. The approaching biennial sessions of the Legislatures of Missouri and Kansas and Iowa, and the State elections to be held next fall make this a peculiarly fitting time and occasion for renewal of activity on the part of veterinarians, and especially on the part of this association. Whether we succeed at this time or not, in securing the recognition at which we aim, we will be laying the foundations for success in the future. I take it that there is no question in the mind of any one present whether the members of the Missouri Valley Veterinary Association will loyally coöperate to secure legislation next winter; it is only a question of how we shall approach the task before us. It is with the hope of exciting discussion which shall evolve a practical plan of action that the essayist has undertaken to present this subject before you.

The foundations of the campaign must be established in the minds of voters, broad and strong as befits the growing importance of the subject. The public is to be reached in three ways, viz.: Through personal contact ; from the speaker's platform, and through publications.

First in importance is personal influence. To have intimately known a man of high honor, is to have an exalted opinion of man in general ; the community that has been fortunate enough to have in its midst a qualified, honorable veterinarian has had its opinion of that profession elevated and broadened. No matter whether the doctor be eloquent or not, or whether he be able to write a convincing article in the most polished language, if he is one of Nature's noblemen, honest, conscientous, diligent and thorough in business and courteous in his business and social intercourse, he is elevating his profession in the minds of his patrons and fellow citizens. He shows forth in a very practical and convincing way that his personal interests are in harmony with the interests of his patrons, and with the public good.

While it is essential that our calling shall be regarded favorably as a learned and highly useful calling, our demands for legislation must be for those things which are to the interest of the public. The profession is dignified by the earnestness with which we seek after the public good, not primarily selfish interests. Whatever degree of respect the title "veterinarian" commands is the result of the silent teaching of a very limited number of veterinarians (for in these States we are few and far between), and in spite of the disrepute resulting from itinerary practice of hundreds of quacks. By maintaining among the profession a high standard of personal and professional ethics, thus increasing the usefulness of the calling, favorable opinions must be won of the public before they may be expected to listen to veterinarians in matters of legislation.

For reaching people interested I believe that farmers' institutes offer opportunities promising good results. If arrangements can be made with the promoters of farmers' institutes to place a veterinarian on each programme whenever practicable, doubtless competent men can be found who for their interest in the progress of the public and the advancement of veterinary science will prepare papers or addresses on subjects that interest both farmers and veterinarians. At suitable times exhibits might be made a feature of the veterinary talk. To effect this, coöperation of veterinarians is essential, for no one man can afford to take from his time and business to attend all farmers' institutes unless salaried for that purpose. Stockmen's meetings also afford excellent opportunities for the education of the public, and a veterinarian should be on every programme. As men making some pretensions to learning, veterinarians must identify themselves with progress in all matters related to their work.

We are fond of referring to the broad field of usefulness of our profession, but remember that it is useful to others only as we make it so, and it rewards us according to our deserving. Granted that the veterinary profession has already won in these States the respect of those who have influence in our legislative bodies, and that our demands are for those laws which would be for the benfit of the public, we may hope to accomplish something at the ensuing election and with the State Legislatures.

Newspapers may also be used to advantage at times. In agitations for pure food supply, control of infectious and contagious diseases, sanitation, and kindred topics, the columns of the secular press will certainly be utilized, and their articles should not be inspired by ignorance of the true merits of the questions, or by malice of those whose interests are opposed to the interests of the public.

Legislators are to be influenced by the same considerations which influence the opinions of others ; by public sentiment, by appeal to their personal ambition and vanity, and by lobbying. I believe that the average statesman (pardon the misapplication of the word) oftener asks himself whether this or that official act will improve his chances of further political preferment, than he concerns himself with the public good. When the interests of his constituency and his own political prospects are in harmony, well and good; but if there is apparent conflict, the interests of the public are usually sacrificed.

As veterinarians we must therefore become practical politicians and lobbyists; must be known as local writers for the secular press, and as speakers on all suitable occasions. We must coöperate with mind, money and motive, and above all and including all these must be imbued with professional *esprit du corps*, and actuated by altruistic motives.

DEFECTIVE EYELIDS.

By R. C. Moore, D. V. S., Kansas City, Mo.

A Paper read before the Missouri Valley Veterinary Medical Association, June 25, 1900.

In the present discussion of this subject I desire to confine myself to three conditions that are most generally congenital, namely, ectropion, entropion, and blepharostenosis. Ectropion signifies an everted eyelid, either from an insufficiency of the skin of the lid, a destruction or shrinking of the same from injuries, an over-development of the mucous membrane, or insufficiency of the orbicularis palpebrarum muscle, either of which causes a displacement of the eyelid, turning its conjunctival surface outward, with, if it be the lower lid, a downward displacement of the ciliary margin, or an upward displacement of the same if it be an upper one. The eye thus being deprived of its natural protection, is liable to chronic conjunctivitis with all its accompanying evils; ectropion is rare in equines and bovines, but common in the canines; especially is this so in the Saint Bernard and English bloodhound.

This condition is almost entirely confined to the lower lid, and its treatment depends largely on the cause. If it be from over-development of the conjunctival membrane, an elliptical piece of this should be removed in the following manner: The animal being placed under the influence of an anæsthetic, the eyelid is everted, and a portion of the membrane grasped with a pair of forceps and excised. The piece must be elliptical in shape, and in size to correspond to the over-development of the membrane. The outer incision must be parallel with the ciliary margin, and sufficiently far from it to allow room for suturing. The angles made by the counter incisions which is carried back of the forceps should be near the inner and outer canthus. The incisions should be made straight through the membrane at a right angle to its surface so the edges will come together evenly. After the piece is dissected, the edges of the membrane are to be brought together by sutures of a light, soft material placed so the knot will be as near as possible to the ciliary margin, where it will produce the least possible irritation to the eye, and left to heal by first intention, which should be assisted by mild non-irritating antiseptic dressings. The sutures should be removed about the fourth day.

If the lesion be simply tumefaction of the conjunctival membrane, it may be pencilled with nitrate of silver, by drawing the caustic from the inner to the outer canthus, just inside the ciliary membrane, wiping off the excess caustic with cotton, and protecting the parts by the application of a little bland oil.

The operation mentioned for over-developed membrane will be indicated if it be due to paralysis of the muscle. If due to insufficiency of the skin, it may be remedied by making a V shaped incision with the base near the edge of the lid, and the lid held in position by suturing the two lids together until the space between the edges of the incision is filled up by new tissue.

Entropion is the opposite of ectropion. The lid is inverted so as to bring the eyelashes in contact with the sensitive structures of the eye causing traumatic conjunctivitis, with suppuration, granulation, adhesion, and finally loss of sight. This condition is very much more common than ectropion. It is found in all our domestic animals, but most common in the dog, in which animal there appears to be more or less of an excess of skin. I am of the opinion that it is much more prevalent than most practitioners are wont to believe. The irritation and consequent pain causes the sufferer to keep the eye closed, which increases the pressure on and injury to the eye.

The inversion may be the entire length of the lid, or only a small part of it may be inverted. It may be turned in so that not only the lashes, but the hair covering the skin of the lid contacts the eye, while in many cases only a limited number of the lashes are touching the sensitive structure called by some "trichiasis," but is merely a modified degree of entropion, and owing to the very slight anatomical defect, is much more difficult to diagnose.

One would naturally think a diagnosis would be easy, as the abnormality is in plain view, but such is not always the case. The constant pain causes the animal to keep the eye more or less closed, which hides the lesion. On careful observation, when the animal is not expecting you to disturb it, the opening to the eye will appear to be too small, then by comparison the ciliary margin will be seen to be displaced inward, to a greater or less degree.

This is, in all probability, always congenital, although it may become more aggravated from the constant contraction of the obicularis palpebrarum muscle, and is due to over-development of the skin of the eyelid, or rather too much skin for the mucous membrane, allowing the latter to draw the margin of the lid inward ; may be either or both lids, but most commonly the lower lid.

Treatment consists in the removal of an elliptical piece of the lid, the same as of the membrane in ectropion. It is well to take up a piece of the skin with the forceps, to determine just how much it is necessary to remove to bring the margin to its normal position, then remove the piece included in the forceps by making an incision through the skin from the inner canthus, parallel to and just far enough from the margin to allow room for sutures, carrying it to the outer canthus, or further if the skin be turned in at the canthus, then commencing at the same point near the inner canthus, a counter incision is carried on the opposite side of the forceps, to join the first at the outer canthus, and the circumscribed piece removed, the edges brought together by closely placed interrupted sutures, and treated antiseptically, as an open wound, or the entire part closed by antiseptic dressings. If the latter is desired, and both eyes are involved, only one should be operated on at one time, leaving the other for use by the animal. The stitches may be removed from the fourth to the seventh day. Complete anæsthesia and cleanliness are essential to a successful operation.

Blepharostenosis is a congenital malformation, where the opening to the eye is wanting or diminished in size, or the margins of the lids may unite from granulation of their surfaces as a result of disease or injury, causing complete anylosis of the lids.

Partial stenosis at the outer canthus is often seen in connection with entropion.

The treatment is similar, whether stenosis is partial, complete, or from adhesion by granulation.

If complete, the skin and membrane must be divided between the lashes from one canthus to the other, and the mucous membrane sutured to the skin with close, fine, interrupted sutures, with a view of getting union of the membrane and skin with the least possible granulation. As the latter is liable to reunite the margins of the lids, as a further precaution, a suture may be placed through the skin near the centre of one or both lids, and the skin of the adjacent parts above or below, or both, to draw the upper lip up and the lower one down, so as to prevent contact of these margins until cicatrization is complete.

I know of no operation that gives better results than those just described, and if carefully and skillfully done, the results are uniformly good.

DIARRHOEA AND A NEW TREATMENT FOR SAME.

By W. T. Campbell, V. S., Cincinnati, O.

Diarrhœa in calves is something that every cattle breeder fears, and well he may, for although common among herded cattle, very little is known of it, and many are the calves we lose every year from it. Among colts it has been very rare in this district until lately, but that may be caused by the few colts that have been raised until recently. It generally attacks them between birth and two weeks after, and I have noticed it in colts up to three and four years old, also in calves until they became yearlings, but the most fatal cases are those under two weeks. Having had a number of these cases lately I thought I would give a description and my treatment of same, which I would like my fellow veterinarians to comment on.

On May 17 I was called to see a colt, a big, raw-boned two-year-old gelding, in very poor condition, rough, staring coat, and a profuse fœtid diarrhœa, with capricious appetite, insatiable thirst, pulse fast, temperature 100°, and respirations about normal. The colt had been in good condition until about a month previous, when he began to lose flesh, and for two weeks had been purging, and was so weak he went staggering all over the place. He had been running on grass, but I ordered him taken up and gave him a dose of oil of turpentine and linseed oil and ordered him fed on wheat bran, and powders of starch, chalk, and powdered opium every three hours. This seemed to have very little effect; so on the following day I gave him rectal injections of warm water and fluid extract of belladonna, and ordered powders of one-half dram of tannopine, given every hour. On the 20th he seemed better; diarrhœa was less profuse, and not so bad smelling. On the evening of the 22d he passed a large quantity of worms, to which I attributed the cause of the diarrhœa. Four days after I saw him; his coat was sleek, his spirits were high, and he seemed better than ever in his life. A few of the younger colts of the place had symptoms of the same, but were all checked by the same treatment before the disease had hold of them.

Now, this is not the contagious form of diarrhœa, but as it is out of the ordinary run of cases, being caused by worms, I picked it out as a good subject.

As to the contagious form: I was called to see a small roan colt at a farm where, although well fed, the stock was illy kept, and in dark, damp stables. The colt was about five days old, and was continually lying, only getting up to nurse, and that was not often. Upon getting on its feet it would stagger as if drunk and probably fall before getting to its mother. The stool was watery and very fœtid. I at once had him removed to a more healthy stable, and gave rectal injections of fluid extract of belladonna and one-half dram doses of tannopine every hour. The relief this gave was wonderful, and the second day after I found him well, although still very weak. It was on this day that a four-weeks-old was taken with the same disease and nearly all the young stock on the place were affected. I then ordered all buildings cleaned and whitewashed, the place thoroughly disinfected, and all loose boards and litter removed to a distant part of the farm. I treated the rest of the animals the same as the first, and checked the disease before well developed. I have had the same experience in calves.

On May 18 I was called to see a herd of cattle on Mr. S.'s farm, which is one of the best dairy farms in this district. The cattle were all Jerseys, and mostly in fine condition, but of late a few calves had been troubled with diarrhœa. The diarrhœa was watery, fœtid and of a yellowish cast; the young calves were all affected, the new-born being the worst. The stable was in a low part of the farm and had been over-stocked, because of a part being taken to raise a new stock of sheep, and as a consequence was very unhealthy. The discharges were numerous, about every half hour, and the animals went staggering about like they were drunk. The temperature was high and slight pain in abdomen. I at once ordered them removed to a different barn, which had been cleaned and disinfected, and gave rectal injections and half-dram doses of tannopine hourly. All calves were fed with milk of the freshest cows, and were washed and kept clean and warm. Some of the lambs were affected, but most of them recovered under the same treatment. After the sixth day the disease was eradicated from the place, and had stopped one of those enzoötics which are so fatal to young cattle.

REPORTS OF CASES.

"*Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.*"

CASTRATION OF AN ELEPHANT.

Operation Performed by DRS. WALTER SHAW, Dayton, O., and W. G. KING, Dodds, Cincinnati, O.

The patient was the property of the Wallace Circus Co. For many months he was so vicious as to imperil the lives of his attendants. This elephant (Pilot by name) was thirty-five years old, an age at which refractoriness should yield to obedience and docility. Pilot weighed 9000 lbs., and was ten feet high. His unruly disposition made it dangerous to exhibit him, and the devising of some means to subdue him was imperative. After due deliberation, his proprietor decided to have him castrated.

In February, 1899, Mr. Wallace advised us of his decision, and we visited the winter quarters of the circus on his beautiful farm by the classic banks of the Wabash, Peru, Ind.

Having surveyed the situation, we gave instructions for making excavation, platform, operating table and all other arrangements necessary for the completion of the operation, including instruments. The manner of confining the elephant and the mode of operation was as follows: Having secured two railroad rails on ties placed in the excavation, four large iron bands were fastened around each rail and tie beneath, for the purpose of attaching cable chains, block and tackle; the space between the rails was filled with cement and this was overlaid with heavy oak planks. His care-taker placed a large cable chain around his girth, in which was a strong ring just below his chest. To this ring another cable chain was fastened and passed through a ring safely attached to his tusk; then about the anterior of trunk through another ring on opposite tusk back to ring immediately under the body. In addition to this (as a guarantee of safety) a strong rope was passed several times around his trunk and tusks. In this condition he was conducted onto the platform, which he held in place by means of his own weight. To each foot a large cable chain was secured, slightly slack; this was accomplished to warrant safety in the event that the block and tackle should break. His front feet were then drawn forward and outward and his hind feet were drawn backward and outward by means of block and tackle. At this juncture, the operating table, four feet wide and sixteen feet long, was arranged beneath his body; then his feet were extended until his body came in contact with the table slightly canted to the right side. A rope was attached to each tusk and fastened at right angles. As he was put under the influence of an anæsthetic the utmost caution was exercised. Thus insensible, an incision was made in his left side through the dermis, just posterior to the last rib, beginning at the end of the transverse process of lumbar vertebræ, extending downward about ten inches. The skin was an inch thick, white and almost bloodless; the external three-fourths of an inch was very viscous and difficult to cut. An eight-inch opening was made through the muscles and peritoneum, in which the hand was introduced, bearing forward, finding the glands just posterior to the kidneys. These glands were loosely but securely attached. The emasculator, which was made with a screw to remove the glands, broke before either gland was displaced, because it was too highly tempered; otherwise it would have answered the purpose. This misfortune made it necessary to reach in at arm's length and ligature the best possible way under the circumstances and remove the glands by the aid of the knife. The peritoneum, muscles and skin were saturated in the usual manner and the incision was closed with wound gelatine. The operation was made aseptic as far as possible. The influence of the anæsthetic had waned by the time the operation was completed, and the animal did not seem to be distressed. He lived fifty-seven hours, during which time his appetite was normal; did not seem to suffer until an hour before his death. The direct cause of his death is not known, as no examination was made.

With the right kind of instruments, properly constructed, this operation, which required an hour and a half, could have been accomplished in thirty minutes. Under favorable conditions, and with suitable instruments, we believe that the operation could be successfully performed, as it would then not be necessary to have the abdominal cavity open more than ten or fifteen minutes.

TORSION OF THE UTERUS.

By W. J. MARTIN, V. S., Kankakee, Ill.

Owing to the rarity of this obstetric malposition among solipeds the following case is thought worthy of record.

On May 1st of this year I was called a distance of twenty miles in the country to see a mare unable to foal. Upon my arrival I found a large draft mare weighing about 1600 pounds stretched out at full length near a strawstack in a field. The mare had been in the throes of labor for a period of twelve hours previous to my arrival, but without showing any sign of the "water bag." She was after much difficulty got upon her feet and taken to the barn, and placed in a large roomy stall.

Upon introducing the hand deep into the vaginal canal, numerous tense heavy folds of tissue were encountered. As the mare was twelve years old, and this being her first foal, fibrous occlusion of the os uteri was suspected. After much patient manipulation, aided by copious injections of tepid water, the hand was with great difficulty passed through the os uteri and into the uterus, where the foal's nose could be barely touched with the tips of the fingers.

In introducing the hand through the vaginal canal and into the uterus, it was noticed that the passage was sharply deflected towards the right flank of the mare, and it suddenly occurred to me that instead of a fibrous occlusion of the vagina or uterus, I had to contend with a case of torsion of the uterus, of a half turn nature and that the twist was from right to left.

Several attempts were then made to effect retroposition of the uterus, but without avail, and the attempts had to be abandoned on account of the powerful labor pains, which rendered the hand and arm when in the constricted passage, entirely useless. Seeing the hopelessness of any such attempts to effect retroposition of the twisted uterus, hobbles were placed upon the mare and she was thrown down and placed under the influence of chloroform. The mare was then turned completely over again and again, while the arm was *in situ* in the twisted vagina, and the attempt was made to untwist the contorsion when the mare was rolled in the opposite direction.

The most herculean efforts on my part failed to effect any change in the twisted uterus, and, being completely exhausted by the several hours of hard work, the attempt to effect delivery was abandoned and the mare was destroyed by chloroform narcosis.

The post-mortem examination revealed the correctness of the diagnosis; there being a half twist of the uterus from right to left. The uterus contained a full grown foal lying with its back to the mare's right flank, the fore feet retracted backwards, with the head close to the os uteri.

The cause of the torsion was no doubt explained when the owner stated that about a week previous, the mare was taken sick with a severe attack of flatulent colic, and during the paroxysms of pain would throw herself down violently and roll over from side to side. This is the first case of torsion of the uterus ever met with in my practice, and I can assure my professional brethren that I am in no hurry to encounter a second one.

HERNIA IN A CAT—SURGICAL INTERFERENCE—RECOVERY.

By Robert W. Ellis, D. V. S., New York.

About June 1st was requested to see a black male cat about a year and a half old ; dull, not eating, and sitting about listlessly a great part of the time. Examination revealed a reducible hernia, slightly to the left of the median line of the abdomen, and about midway between the rim of the pubis and the xiphoid appendage of the sternum ; running slightly in an oblique direction forward and inward ; its anterior extremity being apart from the median line about one-fourth of an inch ; its posterior extremity, about three-fourths. Upon manipulation of the rim or edge of the hernia, after reduction, it proved to be slit-like in form, and about two and one-half inches in length, which I considered quite extensive, when compared with the length of an ordinary cat's body ; and I may say to my professional friends, if not to its mistress, that the subject in question is an *ordinary* cat. The hernial sac before reduction was about the size of a large walnut. An operation was suggested to the owner of the cat, as the only treatment from which satisfactory results could be reasonably expected. This conclusion was reached by the following reasoning : 1st. The rent was slit-like in form, the hernia readily reducible and apparently free from adhesions, all points in favor of good results following an operation. 2d. The hernial sac was large, the rent in the abdominal muscles long, the uncontrollable nature of the animal, were all points unfavorable to other forms of treatment, as the use of trusses, etc.

Accordingly, at the owner's request, I operated on June 12. The cat, after being placed under the influence of ether, was laid upon his back, the hernia reduced, and thorough aseptic measures being observed, an incision was made in the skin, sufficiently large to receive a small curved scissors with which the opening in the skin was enlarged (being held away from the intestines with forceps), so as to expose the gaping aperture in the abdominal muscles, through which could be seen the abdominal viscera, rising and falling with the respirations. The sides of the opening in the skin were held back with retractors, while the edges of the rent in the abdominal muscles were picked up with the forceps and freshened with the scalpel, then brought snugly together by an uninterrupted suture—*a contribution from the anatomy of some distant relative of the cat under operation.* The opening in the skin was then trimmed to suit the reduced surface it was to cover, and its sides brought into apposition by interrupted sutures; a compress of absorbent cotton saturated with creolin solution placed over the seat of operation was held firmly in position by a cheesecloth bandage, which was not disturbed until the seventh day after the operation, the cat in the meantime eating and feeling well. At this time the parts were thoroughly cleansed with creolin solution, and the same dressing renewed. The same procedure was gone through four days later, and finally, in seven days more, when complete union had taken place. This last dressing consisting only of a layer of dry absorbent cotton and a bandage, simply as a protection to the newly healed parts. To this last dressing the cat objected, however, and licked and chewed at it, sufficient to irritate the newly healed surface. The irritation was allayed by bathing with a mild creolin solution for a few days, when the following protective dressing was applied, as his mistress impressed upon me his proclivity for climbing and his passion for his opposite sex.

A "glycerini-gelatine" dressing was placed over the surface, about two inches more extensive on all sides than the seat of operation. An elastic bandage made to lace up the back was then worn by the cat for eight or nine days, but causing chafing in the region of the stifles and elbows, was left off by his mistress; and the cat, seeing no possible use for the glycerini-gelatine dressing, removed that also. The surface of the abdomen, over the seat of operation, and previous seat of hernia, is perfectly smooth and even, and the cat's health and spirits of the best.

What prompted me to report this case? Not because hernia in the cat family is rare, surely. And not because I think this particular line of treatment for hernia is new, just as surely. And certainly not because the operation is difficult. But I report it for a great many reasons. One is, because it is simple. Another is, because I do not believe it is done for the relief of cats in that condition very often—and if I can get in a word for the cats, I am going to do it at any time. Another reason is, to encourage the use of ether in all operative procedures with cats, whether it be simply the extracting of a tooth, castrating a developed male (not necessary with very young kittens), or the more important and intricate operations that may present themselves. The administration of ether to cats is reasonably safe—the more you use it the more confident you will grow on that point; but if you wait for major operations, you will be long in becoming familiar with its use. Use it in the minor cases every day; it will add much to yours and the cats' comfort, and to your accomplishments with them. Another reason is, to show that the case reported was particularly suited to the operation, because of the slit-like form of the rent, which brought its edges close together, occasioning no undue strain upon the sutures, and because it was readily reducible, indicating no adhesions of the viscera to the sac; hence, no fear in incising it. Should the opposite conditions exist, the opening round its edges widely separated, making their apposition difficult, the operation could not promise an uninterrupted recovery; and if adhesions exist, the operation is that much more difficult, and the outcome less certain of good results, therefore not indicated.

These two extremes and the many intermediary conditions can be readily recognized after the hernia is reduced, or cannot be reduced, as the case may be; and a line of treatment and prognosis must be based upon the findings of this careful manipulation, and not simply upon the diagnosis of *a* hernia.

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
of the McKillip Veterinary College, Chicago, Ill.

ABDOMINAL SURGERY.

Abdominal Operations (*Concluded from page 377*).

2. *Intestinal Anastomosis.* — The veterinarian frequently meets conditions in the surgical diseases of the abdomen of domestic animals which can be benefitted by connecting one part of the intestinal tract with another: *e. g.*, the duodenum can be connected with the jejunum, ileum or colon; the jejunum with the ileum or colon; the ileum with the colon; one portion of the colon with another; or the colon with the floating colon. The indication for such interference is usually a pathological condition or an accidental injury to the intes-

tine. The pathological condition may be confined to the mucous, muscular or serous coat, but may involve all of them and be in such a state that the physiological function hinders nature in its reparatory process. The only course to be taken when such a complication is known to exist is to connect the part immediately in front of the portion thus affected to some part of the alimentary tract beyond the diseased portion, forming an artificial passage for the aliment, which will give rest to the part involved, and assist nature in its proclavity.

Accidental wounds which require a resection of the injured portion of the intestine should be treated in this manner, or some other commendable method adopted that will relieve the portion of the intestine approximated of part of its function and avoidable strain; alleviate pain caused by the contents of the alimentary tract passing over the hyperæsthetic area surrounding the seat of the operation; lessen the danger of infection as a consequence of this contact of aliment with the surgical wound; and, to afford an exit for gas generated and accumulated in the intestine anterior to the point in question.

To willfully neglect or refuse to inure intestinal anastomosis when indications suggest such interference would be invalorous, while a careful application of this method of easing and comforting a patient is often a prodrome to an operator's reputation as a surgeon.

Intestinal anastomozing may be divided, *pro forma*, into two distinct operations; the first (*a*) a lateral anastomosis, and second (*b*) an end-to-end anastomosis.

(*a*) *Lateral Anastomosis.*—In making a lateral anastomosis one division of the intestine is connected with another division without interrupting the natural channel by making an incision into each and suturing them together, forming an artificial opening which connects the lumen of one division to that of the other. (Fig. 12.) This opening permits the contents of the alimentary canal to pass from one division to the other, and is an artificial passage which in time becomes smaller and smaller and eventually closes entirely, and in the meantime the intestinal tract resumes its normal condition, with but a permanent adhesion of the divisions, which in many cases causes but little or no inconvenience to the patient.

Operation.—The patient must be properly secured and a general anæsthetic administered; the abdomen is opened, as in celiotomy; the cavity explored and the true condition ascertained; and, the place selected where the anastomosis is to be

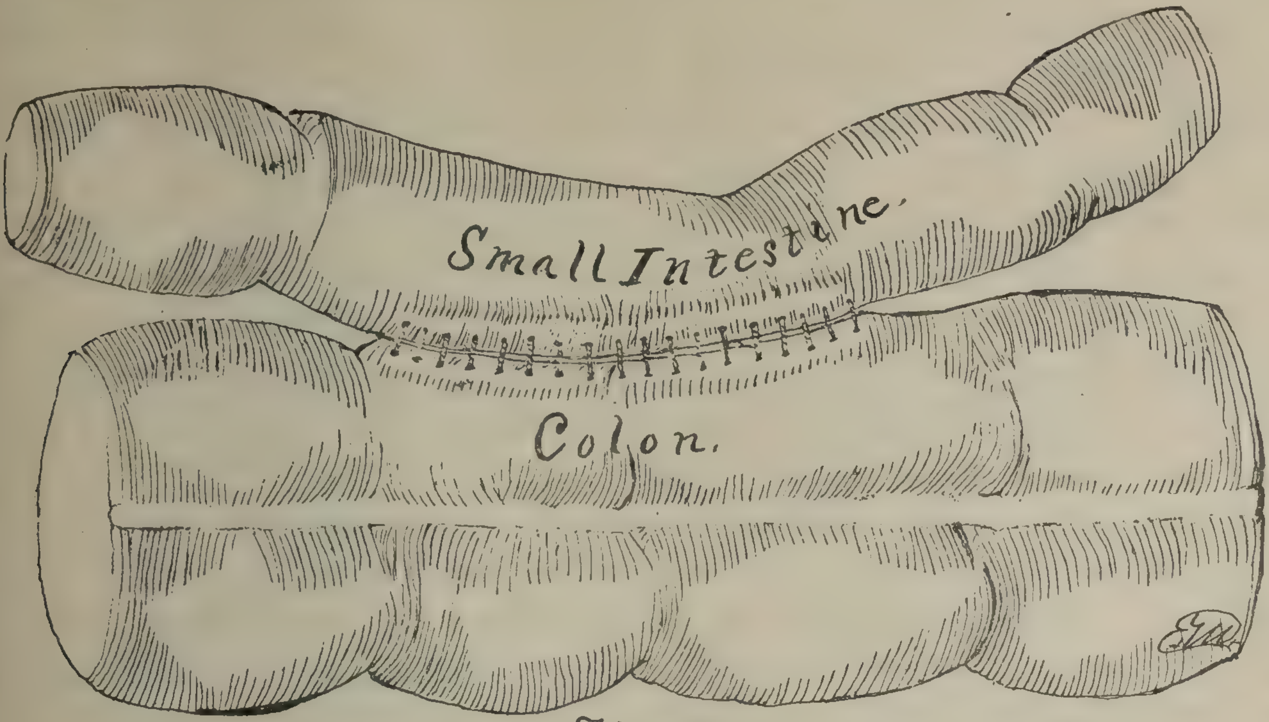


Fig. 12.

LATERAL ANASTOMOSIS.

made. If the intestine is diseased or badly injured, the portion thus affected should be resected before anastomozing, and in every instance the anastomosis must be anterior to the part resected or to the portion that is to be relieved of its function. After all the initiatory work has been completed an incision is made at the point of each division to be connected and the two portions sutured together by two rows of stitches surrounding the incisions. The sero-muscular series of stitches may be applied first to about three-fourths or two-thirds of the circumference of the surgical wound and the stitches ligated on the inside; this part being completed, the muco-mucous series should be applied and as many of them ligated inside as possible, and the remainder on the outside, after which the sero-muscular series may be finished. The sero-muscular suture must be made of catgut and the muco-mucous of silk.

When all the intestinal work has been completed, the cavity must be irrigated with sterilized water and the intestine returned into its proper place, avoiding the formation of a volvulus or an invagination; and the cavity closed and treated as in celiotomy.

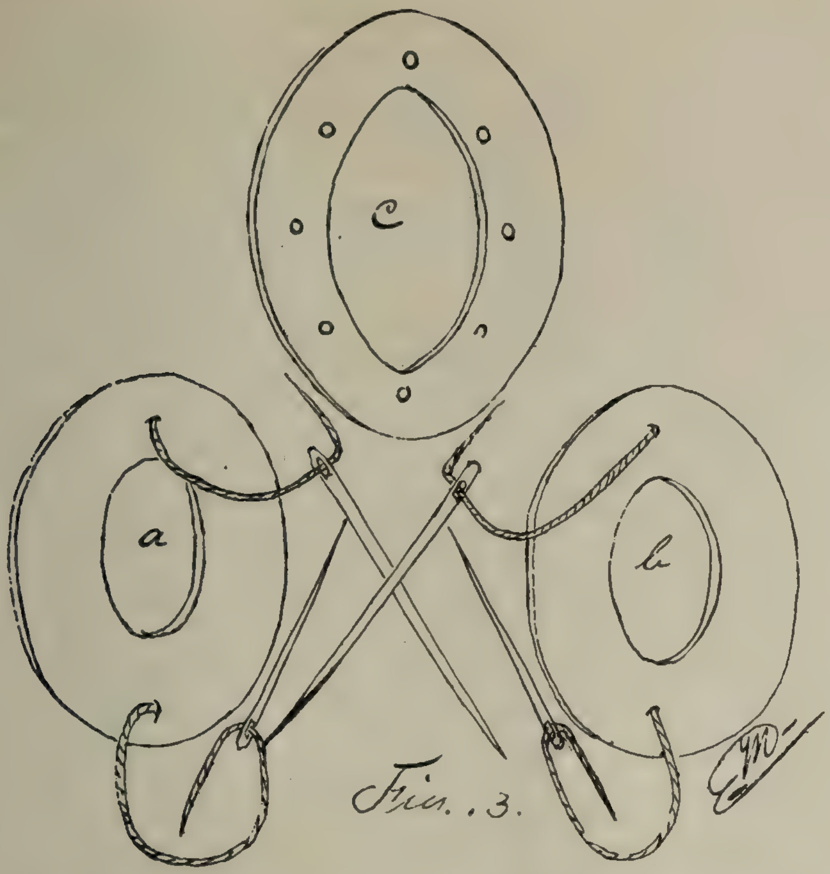
If upon opening the cavity it is ascertained that the alarming condition is due to an intestinal occlusion, caused by a stricture or enteroncus, the diseased portion should be treated as the indication demands; strictures resected and tumors ablated, together with such other interference as may be considered conservant.

After-treatment.—The after-treatment may vary to certain degree, upon the efficiency of the pre-requisite course of treatment. The first step to be taken is to adopt means of keeping the patient absolutely quiet; the peristalsis must be arrested; flatulence prevented, and pain relieved. No food should be given for the first two or three days excepting *per rectum;* water may be given in small quantities and often, *i. e.*, the amount should not exceed that which can be absorbed in the stomach; liquid food can be given after the second or third day and small quantities of easily digested food after the fifth or sixth day. The symptoms and complications which may arise in the course must be handled according to indications; internal hæmorrhage must be arrested; symptoms of sepsis checked; and a slow deferred reaction of shock should receive careful attention. The incision into the abdomen can be treated as in celiotomy.

In human surgery a lateral anastomosis of the intestine is made by using two decalcified bone plates (Fig. 13 *a–b*), one of which is placed in the lumen of the first division and the other in the lumen of the other division, after the incision has been made at the point selected; the needles of each are passed through the wall of each division but not ligated until the edges of the surgical wound have been sutured. When the plates are placed in position, and the edges of the wound sutured, the plates are ligated and the needles removed. A series of sero-serous stitches may be added along the line marked by the circumference of the plates. These plates are absorbed, and even their location becomes latescent.

This method is not practical for the veterinarian; he could not be expected to keep an assortment of these plates varying in size from those adapted for the cat to those required for larger animals.

There is another method that would be more practical in domestic animals than the one just mentioned. It is a method in which only one decalcified bone plate is used (Fig. 13–c). The plate is placed over the incision between the serous coats of the two divisions of the intestine to be connected. The edges of the surgical wound are sutured by a continuous stitch which is passed through one edge of the wound through a hole in the plate and through the other edge, then back to the first edge to a point opposite the next hole in the plate and passed through the edge, hole and other edge; this is repeated until the first hole is reached, but in the last fourth of the circum-



DECALCIFIED BONE PLATES USED IN LATERAL ANASTOMOSIS OF INTESTINE.
a, and *b*, used in pairs; *c*, used singly.

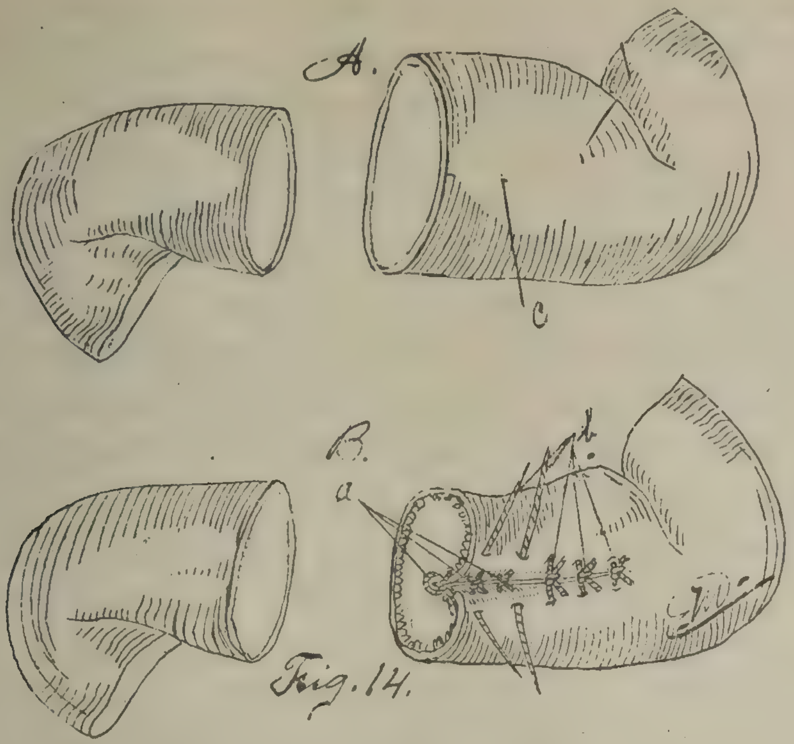
ference the stitches are not drawn up until the needle has been passed through all the holes of the plate, when they should be tightened one by one and the end of the thread fastened. When this suture is completed another row of stitches must be added at the circumference of the plate. These stitches must be made of catgut and should not penetrate the mucous coat of either portion, but bind the two serous coats together. The advantages of this method are few, in fact, there are none worth mentioning excepting that it keeps the opening that connects the two divisions from uniting or closing as soon as it might if it were not kept open by means of the plate. The after-treatment is the same as mentioned above.

(*b*) *End-to-end Anastomosis.*—This is a term that has been improperly applied to an approximation of the ends of the intestine when all or the greater part of a division, or a part of two divisions is resected; *e.g.*, when the jejunum is resected and the duodenum connected to the ileum; the duodenum ablated and the pylorus united to the jejunum; or, the posterior part of the jejunum and the anterior part of the ileum are removed and the ends united so that the continuity of the intestine is restored, are all intestinal operations that have been named by some authorities *end-to-end anastomosis.*

This intestinal operation is much the same as a simple approximation with a resection of but a small portion of the intestine; but, when a large portion is resected it is necessary to also resect part of the mesentery attached to the part removed, and by doing this the danger of primary, complementary and secondary hæmorrhage is increased, and great care should be taken to avoid this by carefully ligating all arteries, which if not properly done may necessitate a reopening of the cavity to check avoidable hæmorrhage resulting from such carelessness. A consecutive hæmorrhage following any intestinal operation is generally an alarming condition; it usually begins after the surgeon is gone, and in many cases the change in the appearance of the patient is not noticed by the attendant before it has greatly depleted it, and before the surgeon can be informed of the condition and return to the patient, it is often too late; the patient is either dead or too weak to withstand additional shock resulting from the reopening and exploration of the cavity and generally dies during the procedure if attempted under these circumstances.

In a resection of the intestine it is necessary to be conservative; and yet, no part that is badly injured and likely to retard or prevent a speedy recovery, or subsequently impair the health of the animal, should be left intact; or, if any part of it is affected by an invasive pathological condition or growth, all of it that was, is, or may be damaged by such an aggressive invasion, should be resected. In intestinal surgery no reliance should be placed in doubtful reorganization of tissues; if there is the slightest suspicion that the injured tissue cannot be made aseptic, or that it may become necrotic from lack of blood supply, it must in every case be removed before any attempt is made to repair the injury; and pathological conditions should be treated in the same manner.

Operation.—The patient must be secured, anæsthetized and the abdomen opened as in all intestinal operations. The cavity is then carefully explored, the existing condition ascertained, and the surgical course judiciously adopted. The part of the intestine injured or diseased is resected, together with the mesentery attached to it; hæmorrhage must be carefully looked after, the arteries should be ligated as near to the large trunk whence they originated as possible, and when all hæmorrhage is arrested, the ends are then approximated. If the ends are of the same size, the procedure is very simple, but if one end is larger than the other, the larger should be reduced to the size of the smaller, by making a longitudinal incision (Fig. 14–*A–c*)



END-TO-END ANASTOMOSIS.

A, Ends of intestine to be approximated when of different calibre; *B*, ends when reduced to the same calibre; *a*, Czerny stitches; *b*, Lembert stitches; *c*, line where longitudinal incision is made.

and suturing it with Czerny-Lembert's suture (REV. XXIV., 4, p. 282), and when of uniform calibre, are approximated and sutured by using the method of suturing approximations which the surgeon considers most appropriate (REV., Vol. XXIV., No. 4, Surg. Dep't.). It is advisable to get as much of the contents of the intestine in region of the part to be resected into the portion that is to be resected and ligate both ends of it, providing that it is not perforated. If perforated either from disease or trauma, the opening may be enlarged if necessary, and contents removed through it; and if any of the contents or septic products from the diseased portion should escape into the cavity, it must be removed at once by irrigation; sterilized water or a mild antiseptic solution may be used for this purpose. After the intestinal operation is completed the cavity should be irrigated again and the abdomen closed in the usual manner. The after-treatment is the same as in lateral anastomosis.

When a large portion of the intestine is removed the results are generally not so satisfactory as those following a small resection. The danger of infection is increased; the system is depleted by shock and hæmorrhage; and the function of digestion and absorption is impaired to a certain degree by the loss of the portion resected; together with a number of unavoidable results, such as tension upon an omentum or mesentery; enteralgia, resulting from impaired nerve function; hypertrophy of the tissues surrounding the cicatrix; or a stricture caused by the cicatrix, are all conditions that may follow this operation.

The Murphy Button (REV., XXIV., 3, p. 216) can be used in this operation to a very good advantage. It can be adjusted in less time than it requires to suture the ends together properly, and in this way the operation may be shortened, which is generally a long tedious procedure, especially when a large portion of the intestine is resected.

3. *Intestinal Approximation.* — This operation is similar to the one just described, with but a small part of the intestine resected, instead of a whole or greater part of a division. The indications are usually abdominal wounds, punctures or pathological conditions involving all the coats of the intestine. The *wounds* may be caused by an accidental injury in which the abdomen is opened and the intestine prolapsed and injured and perforated before this secondary accident can be prevented; or, it may be injured while still in the cavity, as in case of a gunshot wound, or a wound inflicted with a sharp cutting instrument such as a knife, chisel, corn-cutter or scythe. *Punctures* of the abdomen are more common than incised wounds, and they may be caused by animals running into or falling upon sharp or blunt pointed objects; or may be gored by cattle. If the intestine is injured in this manner, the injury is generally a lacerated wound, a bruise, or a puncture, and a resection is only necessary when the injury involves the greater part of the circumference of the intestine. There might be classed among the accidental wounds, rupture of the intestine (*Enterorrhesis*), which is sometimes caused by torsion of the body when the intestine is united to the abdominal walls; in such cases a resection may be necessary in order to repair the injury properly. Among the *pathological conditions* that may require a resection may be included tumors of the intestine (*Enteroncus*); septic condition of the intestine (*Enteropyosis*); gangrene of the intestine; and stenosis of the intestine (*Enterostenosis*), which may be due to a constriction of the circular muscular fibres or a hypertrophy of the walls. There are only a few cases in abdominal or intestinal injuries in which it is possible to determine whether or not a resection is necessary without an exploration of the abdominal cavity.

Operation.—The patient must be cast, properly secured, anæsthetized and placed in the most favorable position to open the abdomen at the place selected. If the indication for the operation is an abdominal wound with visceral injury, or a prolapse of the intestine complicated with a perforation or laceration of the part protruding, the incision made to open the abdomen must pass along the longitudinal axis of the accidental wound, but it must be remembered, however, that the hair must be clipped and shaved before the incision is made; a surgical wound with a *hispid* edge always makes a suspicious wound; but, if the operation comes under the second classification of *Indications for Abdominal Surgery* (Vol. XXIV., No. 3, Surg. Dep't), the place for the incision is left to the discretion of the operator; and may be made as described under "Celiotomy" (Vol. XXIV., No. 5). In all cases the abdominal cavity should be explored sufficiently to ascertain the extent of the injury, but unnecessary manipulation of the viscera should be avoided. The contents of the intestine should be removed either through the wound or an opening made in the part to be resected. When this is done the diseased or injured portion should be resected, being as careful as possible to avoid unnecessary hæmorrhage and arresting unavoidable hæmorrhage. It is absolutely necessary to arrest *all* hæmorrhage in *all* intestinal operations. In resecting all the diseased portion and surrounding tissue that may become pathological must be removed, or if the demand for resection is an accidental wound all the lacerated tissue that is likely to become gangrenous must be included in the resection, but no part should be included in it unnecessarily; it is proper to be conservative and save as much of the injured portion as possible, and good judgment should be exercised in differentiating tissues. After the resection is made, the ends are approximated and sutured by the most appropriate method. If the procedure is to be shortened, the Murphy Button may be used, and if it cannot be obtained, Jobert's method of approximation may be used, as it is the most simple method, but not the most reliable (Vol. XXIV., No. 3). If a good reliable result is desired from a clean aseptic intestinal approximation, the sutures should be made by the Czerny-Lembert method (Vol. XXIV., No. 4, Fig. 6). This method will prolong the operation, but its reliability will compensate for the ordeal. An approximation sutured by the Czerny method (Fig. 7) is not so substantial as the Czerny-Lembert suture. The Lembert suture can also be utilized for this purpose (Fig. 8) and is a very good safeguard against infection (theoretically), providing that the stitches do not slacken before the edges have united. If Czerny's suture is selected it should be made with good catgut, well sterilized; in fact, all approximations sutured with a single series of stitches must be made of catgut, but those to which a secondary series is applied, the inner can be made of silk or linen, and the outer one of catgut. The stitches should be ligated carefully, applying uniform tension to all those included in each series respectively and tying them with a sailor's knot (Fig. 9–*b*).

When the intestinal operation is completed the cavity should be well irrigated with warm water; and, when thoroughly cleaned, the intestine replaced. In returning the intestine, care should be taken not to place it in an abnormal position and not to leave any foreign bodies in the cavity. We can recall a case that died almost a year after an abdominal operation, and upon post-mortem examination a pair of artery forceps were found in the abdominal cavity; and there are other instances where sponges and tampons have been left in the cavity. It is therefore advisable to count the sponges, tampons and instruments before the operation, and again before the cavity is closed, for such mistakes and oversights are a discredit to the surgeon. Being satisfied that the cavity is thoroughly cleansed, and all instruments, sponges and tampons removed, the abdominal incision is then sutured in the same manner as in celiotomy.

After-care.—The first thing that should receive attention is shock, and must be treated as shock following other operations; peristalsis must be arrested; pain relieved; thirst must be quenched by administrating small quantities of lukewarm water, sponging the mouth and by the administration of an occasional nutritious enema; sepsis should be treated by subcutaneous injections of a normal salt solution, cold application, and if the temperature keeps on rising the cavity should be reopened and the septic products removed and parts well irrigated with antiseptics; and food should be withheld for the first two or three days, and at first should be given in very small quantities. The temperature should be carefully watched for the first three or four days; a sudden rise is an indication of sepsis, and the treatment should be as the conditions demand.

4. *Enterotomy.*—This is an operation that is of more importance to the veterinarian than other intestinal opera-

tions, and its indications may be classed as follows, viz.:

(A) Coprostasis.
(B) Intestinal occlusions.
(C) Foreign bodies in the intestine.
(D) Intestinal dilatations containing foreign substances.

(A) *Coprostasis:* the accumulation of fæcal matter in the intestine, due to the arrest of its onward flow, either from the lack of nerve supply or a hardening of the aliment, as a result of a chemical change or insufficient moisture, and which cannot be expelled or relieved by any other means, should be removed by opening the abdominal cavity and the intestine at the appropriate place. Among the additional causes of coprostasis may be enumerated faulty alimentation, inactivity, forced idleness and lack of exercise, abrupt dietetic changes, inactivity of intestinal glands, and paralysis of the intestine. *Faulty innervation* may reduce the peristaltic action of the intestine and allow the contents to fill the lumen, or cause a dilatation in which is collected the indigestible part of the aliment, which may eventually cause an accumulation of the fæcal matter and completely occlude the intestine. *Hardening of aliment* may result from the increased absoption of the stomach and anterior portion of the intestine, and the arrest or impaired secretion of intestinal glands; the chemical changes in this connection are manifested in the form of calculi. *Faulty alimentation:* foods containing a large amount of cellulose or other indigestible substances may accumulate in the intestine, become hardened by the absorption of its moisture, and thus form an obstruction which may in time completely fill its lumen. *Inactivity:* animals that are not exercised and fed on large quantities of rough food, and those that are "laid up" and fed on nutritious food without exercise, when accustomed to hard and regular work, may acquire some digestive disorder which may be followed by an accumulation of the contents of alimentary tract. *Abrupt change of diet:* when animals are accustomed to a certain kind of diet, the digestive organs adapt themselves to the demand made upon them to facilitate its digestion, and any sudden deviation from the ordinary diet may cause some functional disorder of the intestinal tract which may be followed by coprostasis. *Paralysis* of the intestine is often followed by the accumulation of the fæcal matter, and in many cases cannot be relieved unless the paralysis is only local.

(B) *Intestinal Occlusions.*—Under this classification of indications for enterotomy can be considered all obstacles that can arrest the flow of the contents of the intestine, which can be relieved by the removal of the contents through an opening made in the intestine, and the causes of such occlusion may be enumerated as follows, viz.:

(*a*) Calculi.
(*b*) Strictures.
(*c*) Tumefaction.
(*d*) Dilatation of intestine.
(*e*) Change in relation of intestine.

(*a*) *Calculi.*—A calculus seldom causes an occlusion in itself, but in many cases it is the primary cause of the occlusion; very few of them exceed eight or ten centimeters in diameter; hair balls (*ægagropilæ*), which produce the same disorder, are usually larger than calculi. In many instances the calculus causes a tumefaction of the walls of the intestine by irritating them, and this hypertrophy of the wall lessens the calibre of the intestine and eventually almost or entirely closes it, and requires a resection of the part thus affected in addition to the removal of the contents. The symptoms of intestinal occlusion due to calculi are the same as in coprostasis, but now and then a calculus may be found in the excreta, and when such conditions cannot be relieved by medication, enterotomy is the only resort. To this classification may be added all obstructions that are caused by foreign and indigestible substances.

(*b*) *Strictures.*—These may be caused by a constriction of the circular muscular fibres or a hypertrophy of the walls; the exciting cause being generally an injury, a chronic catarrh of the intestine may produce a hypertrophy; helminth may cause the same condition or any injury that will cause a cicatrix. Anterior to these strictures is usually a dilatation caused by the increased pressure resulting from the arrest of the contents of the intestine. Enterotomy may relieve the condition temporarily, but if the stricture greatly reduces the lumen, it should be resected.

(*c*) *Tumefaction* of the walls of the intestine will reduce the calibre of the intestine and the contents will accumulate anterior to the constricted part and form a dilatation. These tumors may be cancerous or sarcomatous, and may require ablation, but if the temporary condition is accidental, due to faulty dieting and the patient unable to withstand the removal of the tumefied portion, the contents of the intestine may be removed by enterotomy, but in such instances the relief would be only temporary; a resection is the only radical method to adopt.

(*d*) *Dilatation of the Intestine.*—Dilatations may result from impaired nerve supply, prolonged obstructions, accumulation of indigestible substances, strictures and tumors. Those that are caused by impaired nerve supply to a part of the intestine are usually partly filled with the contents of the alimentary tract, and can be relieved by enterotomy and reduced to its normal size by suturing; those caused by prolonged obstructions may be treated in the same way, the contents removed and the incision sutured; and those resulting from a stricture and tumor (*enteroncus*) require a resection and also a reduction of the calibre of the dilated portion.

(*e*) *Change in the Relation of Intestine.*—These obstructions are more common than those caused by other means. The cause of the occlusion of the intestine due to intestinal alterations may be as follows, viz.:

First: Volvulus.

Second: Intussusception.

Third: Intestinal strangulation.

Firstly, volvulus is more common to the small intestine and floating colon, than in the large colon, and consists of a rotation of the intestine upon its longitudinal axis. An occlusion caused by a volvulus that has existed for a long time, should be treated by removing the contents that have accumulated anterior to the volvulus by enterotomy and replacing the intestine in its natural position.

Secondly, an intussusception or invagination consists of the passage of one portion of the intestine into the lumen of the other, and in this manner occludes the opening and arrest the passage of the ailment. The site of the invagination is usually at the cæcum; and the following varieties may be observed, viz.: the *ileal*, in which the ileum passes into the cæcum; the *ileo-cæcal*, when the ileum and the ileo-cæcal valve protrude into the cæcum; *colic*, when the large colon extends into the cæcum; and, the *ileo-colic*, when the ileum extends through the cæcum into the colon. Each of these conditions may produce an obstruction, and require the removal of the accumulated aliment by enterotomy and the restoration of the intestine to its normal position.

Thirdly, intestinal strangulations may be caused by the passage of the intestine through the foramen of Winslow, the inguinal ring, perforations of the mesentery, omentum or broad ligament. The treatment of these occlusions consists of relieving the strangulation, and if the accumulation of the contents of the intestinal tract is likely to cause any systemic disturbance, it should be removed by making an incision into the intestine.

(*c*) *Foreign Bodies in the Intestine.*—The foreign bodies found in the intestinal tract of domestic animals vary in different species: those common to the horse are calculi, sand, broken nails, tacks, and small pebbles, to which we may add intestinal worms that accumulate and form bunches or balls which act as foreign bodies. The intestinal *calculus* is a chemical compound composed of the phosphates and carbonates of insoluble bases, which accumulates around some nucleus, and is enlarged by the continual deposition of these salts. *Sand* often accumulates in the intestinal tract of herbivora, and is taken into it with the water, grass or hay; in some animals it is taken into the digestive tract by eating dirt, an aberration of appetite (*pica*); and, in other instances it is due to a depraved appetite. Small pieces of nails, tacks and pebbles are often swallowed with the food.

The foreign bodies found in the intestinal tract of the ox are bezoars, hair balls, sand, clay, rags, leather, and pieces of wood, glass, crockery, tile, together with all kinds of rubbish; and, most invariably, these articles are taken into the alimentary tract as a result of an aberration of appetite.

In the dog, the foreign bodies found in the intestinal tract are bones and such objects with which it plays. It is not uncommon to find marbles, pebbles, nails, balls, coins, corks, sticks and sponges in the intestine of the dog. When the condition, produced by these foreign bodies, cannot be relieved by palliative treatment, the abdomen should be opened and the objects removed through an incision made into the intestine.

(*d*) *Dilatation of the Intestine Containing Foreign Bodies.*—Dilatations of the intestines may be divided into two varieties, viz.:

(*a*) Dilatations caused by foreign bodies.

(*b*) Dilatations caused by obstructions.

(*a*) *Dilatations Caused by Foreign Bodies.*—These dilatations are produced in obedience to the law of gravitation; the weight of the object enclosed in the intestine rests upon the inferior part of the wall which causes a dilatation of this part of the wall by the continual strain on the anatomy involved. The *cul-de-sac* though small at first, enlarges as the weight increases; if caused by a calculus, it increases in size by the accumulation of the precipitates which enter into its composition; and, if caused by other foreign bodies, the pouch is enlarged by the accumulation of the constituents of the contents of the alimentary canal having the greatest specific gravity (clay, sand, etc.). These dilatations can be successfully treated by making an incision into the intestine (*enterotomy*) and removing the contents in it and suturing the intestine to its proper size.

(*b*) *Dilatations Caused by Obstructions.*—These dilatations are located anterior to the obstruction that occludes the intestine, such as strictures, intussusceptions or tumefactions of the walls of the intestine. The treatment of these conditions generally requires a resection of the stricture or tumefied portion; but, if caused by an invagination, it should be relieved and the dilatation treated as indications demand.

Operation.—This operation is comparatively simple; the patient is cast, secured and anæsthetized; the abdomen opened and explored, and the site for the incision selected. If the place selected is located in the small intestine, the incision should be made in the direction of the longitudinal axis (Fig. 15, *B–c*); but if in the large intestine it should be made at a right angle to the long axis (Fig. 15, *A–a–b*). In the small intestine there are two reasons for making a longitudinal incision; first, because it can be made sufficiently large to conveniently remove the contents of the intestine; second, because it can be sutured so as to reduce the calibre of the intestine if a dilata-

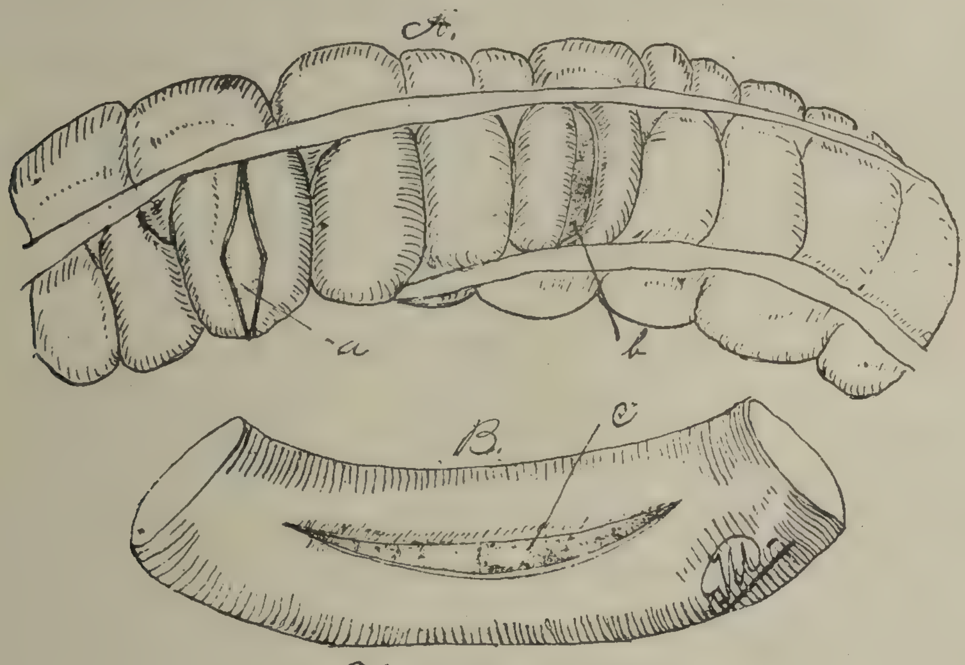


Fig. 15

ENTEROTOMIES.

A, large intestine; *B*, small intestine: *a* and *b*, location of incisions in enterotomy of large intestine; *c*, location of incision in enterotomy of small intestine.

tion exists. In the large intestine the incision is made across the longitudinal axis, because it is more easily sutured than when made longitudinally; the colon is composed of a number of consecutive pouches or *culs-de-sac*, and if incised longitudinally, two or more of these will probably be opened which will make an irregular surgical wound difficult to suture properly.

If the part to be incised can be brought to the outside of the cavity, it should be done before the incision is made and the contents removed; but, if it cannot be done the contents should be received in some convenient sterilized vessel. Every precaution should be taken to prevent the contents escaping into the abdominal cavity. If the intestine is dilated, its size should be reduced by suturing; if any part is diseased, it should be resected and the ends approximated, after the contents are removed; this being done, the peritoneal cavity is carefully irrigated and closed; and the after treatment is the same as in other intestinal operations.

(*To be concluded.*)

N. B.—It will be noticed that the instruments required for abdominal and intestinal operations have not been mentioned, which was due to an oversight; will refer to them in the summary at the close of the article on "Abdominal Surgery"; however, this is not a serious error; the veterinarian that will attempt abdominal operations does not include among his surgical instruments—the *cleaver* or *squeegee*.—(E. M.)

SURGICAL ITEMS.

ABLATION OF ANAL (*Odoriferous*) GLANDS OF THE SKUNK (*Mephistis Mephitica*).—To Dr. J. M. Wright, veterinarian for the Lincoln Park Zoological Garden, Chicago, is probably due the credit of being the first veterinarian to perform this unusual as well as unique operation. While it is not probable that this procedure will ever become a very common one with the veterinary surgeon, on account of the unpleasant smell attending the least error in the technique of the operation, and the rarity in which the skunk is used as a pet animal; yet, it is one well worth remembering, because an animal thus treated can be kept on exhibition in full view of the public without danger of the consequence of its wrath; besides, it is said that the skunk when domesticated, makes a good rat and mouse exterminator; and, an operation that will transform an animal whose very name can hardly be referred to in polite society into a useful household pet, is certainly not valueless. It might be well to mention that the odoriferous fluid of the skunk is not its urine, or connected in any way with its urinary apparatus, but is secreted by two enormously developed follicles situated in the rectum (in the lateral walls), and which empty their contents through two large papillæ located on each side and just inside of the anus. The glands (*follicles*) are no more or less than well developed anal glands found in all carnivora. The papillæ are brought to view by an inversion of the anus, which cannot be done without the animal raising or curling its tail; and the follicles are covered with well developed muscles over which the animal has perfect control, and which are strong enough to eject its stream for a distance of three to four metres. The technique of the operation is as follows: the animal if tame can be deprived of its apparatus without the annoyance of smell by preventing it from curling its tail over its back; but, if wild it will surely give vent to its wrath while being caught. In any event, when caught the tail must be kept in a straight line with the body. The surgeon brings the papilla to view by inverting the anus (which is very large) with the fingers, and each papilla is grasped with a strong artery forceps which will prevent the ejection of fluid; first, one pair of forceps is taken up and a circular incision is made through the mucous membrane around the base of the papilla, and with gentle traction the pear-shaped pouch is brought to the surface without further ceremony; the opposite one is treated in the same manner, which leaves two small surgical wounds from which the patient shows no perceptible inconvenience. A remarkable point in the anatomy of the organ is its loose attachment to the surrounding structures. When the mucous membrane at the base of the papilla is incised no other adhesions prevent the follicle from coming out easily.—(*L. A. M.*)

The successful surgeon is the one that adopts the simplest and plainest methods to accomplish his purpose. He who has perfected his operative methods, so that they are as practical in an ill-constructed, inconvenient stable, as in a well equipped hospital, and performs his operations with neatness and alacrity instead of making them long, bloody, tedious procedures, and who can with the instruments of his pocket case, do as well as with an instrument agent's paraphernalia, is a practical surgeon; and does as much to advance science as the surgeon that demands a well equipped operating room, and magnifies the technique unnecessarily, notwithstanding that "Simplicity marks the surgery of 1900."—(*E. M.*)

In bowel lesions, whether great or small, the aim of surgery is to preserve the integrity of the bowel. A bowel should not be resected as a matter of choice. Well-pronounced indications should be present to warrant such radical procedure. In looking for such indications one may fall short of or overstep a conservative position.—(*T. A. Ashby.*)

The reasons for the early removal of surgical dressings are sepsis; secondary hæmorrhage; displacement of surgical dressings and bandages; undue pressure of dressings and bandages; dressings soiled by fæces or urine; and, dressing soaked by wound secretions. When surgical dressings are left undisturbed for six or seven days it is advisable to explain to the client your object for not removing them sooner, as he may think that you are neglecting your patient.—(*E. M.*)

Theoretically it is impossible to absolutely disinfect the skin of the patient and the hands of the operator. Practically it is one of the simplest tasks to obtain a degree of surgical cleanness that will insure primary wound-healing.—(*A. J. Ochsner.*)

Avoid the use of force in irrigating the abdominal or pelvic cavity; if a syringe or douche bag is used for this purpose, use only sufficient pressure to make a gentle stream, and allow the water to run over the surface in obedience to the law governing fluids.—(*E. M.*)

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

Sharp but Profitable Lesson in Hernia.—Under this title a young practitioner, "Novice," records this interesting case to guard others from a similar predicament: The subject was a pony gelding which presented a large swelling on the inside of the near thigh. At first the case seemed to be simple enough and a diagnosis of lymphangitis was made out and appropriate treatment ordered. For the three following days there was no change, but after a few more the symptoms assumed more severe characters, and a soft prominence was observed on the inside of the thigh three inches below the stifle. This was punctured with an incision large enough to introduce the little finger, but nothing came out of the cavity. On the following day the horse was taken with violent pains and the bowels protruded some 18 or 20 inches through the incision made the previous day. The animal was destroyed. At the post-mortem a rupture six inches long was found in the abdominal floor through which the bowels had escaped and gave rise to the swelling spoken of, which occupied a space between the skin and the muscle. The position of the hernia on the inside of the thigh was the cause of the error of diagnosis.—(*Vet. Record.*)

DROPPED ELBOW [*By H. L. Roberts*].—An aged bay mare was found very lame one morning in the stable; there was little pain, severe lameness, and when the animal was made to walk, she progressed with the utmost difficulty and seemed in danger of falling down. Her elbow on the off fore leg was considerably lower than that of the near side. A diagnosis of fracture of the first rib was made out, and for reasons of economy the mare was destroyed. At post-mortem the first rib was intact, also the olecranon. There was some infiltration about the region of the elbow. The author concludes by asking the question " how often are we justified in giving the opinion of a fractured first rib in those cases where radial paralysis is one of the chief symptoms manifested ? "—(*Vet. Record.*)

EVERSION OF THE UTERUS IN THE MARE.—Referring to the scarcity of cases on record, the author, Dr. W. R. Davis, relates three cases which occurred in his practice, one which proved fatal because of the uterus being crushed by the foal, and the excessive weakened condition of the mother; a second, which he reduced by manipulation, after the application of a body twitch and the administration of a good dose of chloral. In the third case, the mare had considerable œdema of the hind legs, and for three weeks before foaling had to be helped to rise, and on several occasions had to be slung to keep her standing. She foaled, but a few hours after had complete eversion of the uterus. Her hind parts were raised with sacks of chaff, and with some difficulty the organ was replaced, and the vulva stitched. She made rapid recovery. The author believes that anæsthetics are not necessary, as a rule, nor even desirable. Four grains of morphia or six drachms of chloral may be used to dull sensibility. Antiseptics are useful to clean the uterus. Metro-peritonitis and laminitis are sequelæ to be looked for, and are guarded against by antiseptic washes and laxatives.—(*Vet. Record.*)

AN OBSCURE TUMOR [*By A. Whicher and F. Olver*].—A dachshund bitch was brought to them carrying a swelling on her abdomen, which looked like a mammary tumor. They postponed interfering. The next day they were informed that a physician had chloroformed her, and after taking the necessary precautions, began to operate, without having any idea as to what he should find. He dissected the tumor, and when he came to its base found a stricture, the nature of which he could not make out. He ligatured it and removed the "tumor," which on being opened was found to contain a perfectly developed fœtus. The bitch made a good recovery, and at the proper time gave birth to four perfectly healthy pups.—(*Vet. Record.*)

RUPTURE OF THE UTERUS [*By G. J. Roberts*].—A cow was delivered by embryotomy of a celosomian monstrosity. On examining the part afterwards a complete rupture of the uterus, 12 inches long and six inches from the os, was discovered. After allowing the animal to recover from the exhaustion of her difficult labor, the doctor applied 30 continuous stitches on the edges of the uterus. When the last was made the needle was withdrawn and the loose end held in the left hand, whilst the sutures inside were tightened up with the right hand. The cow made a good recovery. Slaughtered several months after, no trace of a scar could be seen on the uterus.—(*Vet. Record.*)

INTERESTING NEURECTOMY PATIENT.—Mr. F. Hobday, who has resorted to the operation of neurectomy many times, records the case of one animal which had ringbones on both fore legs and a series of splints on each cannon bone, which were very tender. Median neurectomy was performed with the ordinary results—removal of the lameness. Two years afterwards the same horse became very lame with spavin of the near leg, which resisted firing and blistering. Anterior tibial neurectomy was not successful, but when the posterior tibial nerve was divided an immediate great improvement was observed, and continued until the lameness had entirely disappeared, and the horse has been able to do his work ever since.—(*Vet. Record.*)

TAPEWORMS FROM A DOG [*By G. Perkins*].—This is certainly a record. Small fox terrier, 10 months, suffered with tapeworm. After starving 24 hours he is given 20 grains of freshly grated areca nut. It operated well. The dog was relieved of 95 complete worms, *tænia serrata*. Only those that had a head were counted. The lot together weighed 5 ounces. They were between 18 and 30 inches in length.—(*Vet. Record.*)

ITALIAN REVIEW.

COLLASTINA IN VETERINARY SURGERY [*By Dr. A. Baldoni*].—Under this name the author refers to an emulsion of wax, gum arabic, glycerine, water and oxide of zinc, already used by an Austrian physician, and which has been more or less modified by Dr. Zenoni, of the Serotherapic Institute of Milan, who experimented with it as a new protective apparatus for heifers used in the preparation of Jenner vaccine. The author has tested its application in veterinary surgery and obtained with it excellent results. Collastina is a soft, whitish substance, with odor of wax and has great adhesive properties and can be readily spread over the surface of a wound of the skin, and adapting itself well to all irregularities. It can be rendered more aseptic by the addition of formaline, salicylic acid, salts of silver, etc. It is applied on the parts it is to cover after shaving off the hairs, and thorough disinfection. When supported by a coat of wadding outside it forms an impermeable dressing. Used in large sutured wounds of the skin it has prevented the introduction of germs into the wound. It is very useful in regions where it is very difficult to apply a germ-tight dressing, as on the face, in the regions of the neck, of the shoulder, the croup, the withers, etc. In the dressing of foot operations, in wounds with loss of substance after periostotomy, in amputation of the tail, and specially for dogs its advantages are always very great. The author also recommends it as an adjunct, a support in cases of fractures of the extremities of small animals. However, collastina is not free from one objection—similar to that of many forms of plasters: it ordinarily becomes loose after four or five days, but yet it has so many advantages that it cannot fail to become more in use and to supersede all other preparations used with the same object.—(*Clinica Veter.*)

LARGE SANIO-PURULENT COLLECTION IN THE UTERUS OF A MARE [*By MM. C. Sanfelin and S. Vicariotto*].—For a month this mare has lost flesh and from the vulva throws a certain quantity of dense yellowish liquid when she is about micturating. She has been covered several times; now she is thin, but shows no change in her pulse or temperature. In making rectal exploration the uterus is felt largely distended and by gentle pressure over it a whitish yellow discharge is made to escape by the vulva. The canula of a large syringe was introduced through the vulva and through it some 42 litres of some liquid substance was extracted. It was very fœtid in odor, and made up partly of serous yellow brownish fluid and of a sanious solid mass, extracted by fragments from a fœtus dead some time. The uterus was thoroughly washed with a solution of sublimate at half per cent. Subsequently the cavity was irrigated with tannic acid solution, 20 per cent. Recovery was complete in 14 days. The case is recorded to show (1) the resistance offered to infection by the uterine mucous membrane without showing manifestations of septicæmia; (2) recovery obtained by the use of a treatment which by many others have been regarded as fatal.—(*Clinica Veter.*)

TRAUMATIC PARALYSIS IN A CALF [*Dr. C. Tovo*].—While sucking his mother, the little fellow was thrown down by her, which in moving her leg had passed it through his collar. The calf fell with his neck bent and was found with his head bent under the cow's abdomen. When relieved the mother moved away, but the calf remained down, paralyzed, and when put on his feet would be unable to stand, but would drop down on his side with his head and neck bent backwards towards his flank. All his functions were otherwise normal. Subcutaneous injections of 5 centimetres of sulphate of strychnine and 4 grammes of iodide of potassium were prescribed. Improvement was soon manifest, but after three days the dose of strychnine had to be reduced to 2 centigrammes to be given every other day. After a week or so of this treatment the calf was able to stand and by degrees recovered entirely.—(*Clinica Veter.*)

POISONING OF A STEER WITH SULPHATE OF COPPER [*By G. B. Platti*].—Exhibiting great excitement, muscular spasms and great sensibility of the abdomen this animal had for two days lost his appetite, his rumination, and had abundant saliva escaping from the mouth. His temperature was 36.7, the beatings of the heart strong and irregular, respiration accelerated, fæces dry, hard and coated. On inquiry from his driver he reported that he had used him to pull a wagon carrying a solution of the copper salt to irrigate the fields of grape vine. The diagnosis imposed itself. The treatment consisted in the administration of the white of eggs, red wine and tannic acid with rectal injections of solutions of bicarbonate of soda (2%) and friction of alcohol over the whole body. In a week's time the toxic effects of the copper were gone and the animal was able to resume his work.—(*Clin. Veter.*)

CŒNURUS CEREBRALIS IN A TWO-YEAR-OLD HEIFER [*By G. B. Platti*].—The symptoms exhibited by this patient were as follows: temperature normal, respiration short and anxious, beatings of the heart and pulse normal. She is dull but at times is taken with convulsions. She had been bought only the day before and began to show her symptoms when put in her stall. Unable to make a diagnosis at a first visit, and noticing the difficulty of motion of the hind quarters of the animal, the author suspected a dropsical condition of the brain and advised slaughtering. At the post-mortem and examination of the cranial cavity he found lesions of fibrino-purulent pachymeningitis, and a rather large cyst filled with whitish points, which examined with a powerful magnifying lens proved to be hooks of tænia cœnurus.—(*Clin. Veter.*)

REVIEW OF BIOLOGY.

ENDOGLOBULAR HÆMATOZOA OF SHEEP [*By Lavedan and Nicolle*].—In September and October last Mr. Nicolle observed in the vicinity of Constantinople a small epizooty in a flock of sheep. The principal symptoms were: fever, general dullness, diarrhœa, submaxillary œdema. Death occurred in two or three days or the animals would recover. The following lesions were observed: slight exudation in the serous cavities, œdematous aspect of all the tissues, blood fluid and rosy in color, some ecchymosis under the pericardium, tumefaction of the entire ganglionary system, slight hypertrophy of the spleen, intestinal mucous membrane congested. The endoglobules of the blood contained round or oval parasites. Each parasitic element had a round or elongated karyosoma, situated on the periphery. Free parasitic elements were seen, in small number comparatively to the endoglobular elements. The parasitic elements are much more numerous in the spleen than in the blood of the great circulation; they had the same aspect but were larger. There were also elements in the way of division; they were more abundant than in the blood of the general circulation. This epizooty seemed identical with the disease called in Roumania *carcurg*, which Babes attributes to an hæmatococcus. It is probably the same that gave rise to the epizootics observed by Bonome in the sheep of the surroundings of Padona. The endoglobular hæmatozoa of sheep is evidently closely related by its simple structure and made of endogenous reproduction of the parasite of Texas fever, *piroplasma bigeminum.* The authors call it *piraplasma ovis.*—(*Soc. de Biology.*)

ENDOGLOBULAR PARASITES OF DOGS—NATURE OF INFECTIOUS JAUNDICE OF DOGS [*By P. Leblanc*].—The presence of the symptom ictère in sheep carrying hæmatozoa allowed the thought that their presence would explain the nature of infectious jaundice in dogs. Indeed, that disease has all the character of a fever of marshes. It affects principally the hunting dog, and no plausible supposition as to its nature has yet been presented. In the blood of a dog suffering with a very severe attack of infectious jaundice, the author has found in large quantity, hæmatozoa very analogous to those found in cattle and sheep suffering with hæmoglobinuria. Examination of fresh blood has given the best results. The parasites are fixed on the hæmatin, but exist in great number in the plasma. Although one single observation is not sufficient to establish the fact that the disease is due to the hæmatozoa, it is right to suppose that they play an active if not the unique part.—(*Soc. de Biol.*)

PIROPLASMA CANIS IN THE DOGS OF SENEGAL [*By Dr. E. Marthome*].—In 1895 Piana and Galli Valerie observed in dogs in Italy the presence of an endoglobular hæmatozoa which by its form resembled the *piroplasma bigeminum* of Smith and Kilborne. R. Koch found it in Oriental Africa. Mr. Marthome has observed it in Senegal in the blood of eleven dogs. He calls it *piroplasma canis.* These dogs exhibited a slight rise of temperature, corresponding to the period where the parasites were in greatest number in the circulation. None had jaundice. The hæmatozoas of dogs differ from those of cattle by being larger, their bigemination is less frequent, and they are oftener outside the globules. It would be interesting to know if it is the same as the one described by Mr. Leblanc.—(*Soc. de Biol.*)

BIBLIOGRAPHY.

LAS ENFERMEDADES DEL GANADO (The Diseases of Animals), by D. Monfallet, late Professor to the Agricultural Institute of Chile.

Under this title, the author has given an excellent treatise, including general pathology and therapeutics, as well as internal pathology with all microbian diseases. Having dedicated it to Prof. Leclainche, his teacher, Mr. Monfallet has with great talent condensed in few pages many essential points very interesting to read. Far superior to many "Vade Mecums" already existing in our literature, the little work gives in its whole ensemble a very correct idea of the present state of the knowledge of animal pathology.

Written in Spanish, for agriculturists in Chile, the book deserves to be read by veterinarians; it is a precious acquisition to Spanish literature, still so poor. Consideration of special diseases observed in Chile, give to the work of Mr. Monfallet a special interest. A. L.

COLLEGE COMMENCEMENTS.

CHICAGO VETERINARY COLLEGE.

The seventeenth annual commencement exercises of the Chicago Veterinary College were held on Tuesday, March 27th, at the College auditorium, when a number of friends of the graduating class were present. Prof. Joseph Hughes presided. The degree of M. D. C. was conferred upon the following gentlemen: A. W. Beveridge, Belle Center, O.; T. W. Corkery, Urbana, Ill.; F. H. Davis, Ottawa, Ill.; H. A. Hela, Cokato, Minn.; J. J. Heldring, Amsterdam, Holland; J. Hill, Jr., N. Platte, Neb.; H. Jensen, Weeping Water, Neb.; O. H. Leonhart, New Washington, O.; L. F. Miller, La Salle, Ill.; A. J. Roll, Natrona, Pa.; G. Springer, Hastings, Neb.; L. C. Tasche, Sheboygan, Wis., and A. M. Wray, Richmond, Ill.

Dr. H. Jensen, of Weeping Water, Neb., was awarded the gold medal for the best general average in all branches. Dr. H. A. Hela, of Cokato, Minn., received the prize of Theory and Practice consisting of a $25 case of instruments. Dr. F. H. Davis, Ottawa, Ill., was presented with $25 worth of books on account of his high standing in anatomy.

In conclusion Prof. A. H. Baker made a few interesting remarks concerning the future prospects of the veterinarian and wishing the parting graduates a prosperous career.

CORRESPONDENCE.

A REPLY TO DR. HOSKINS.

ITHACA, N. Y., Aug. 15, 1900.

Editors American Veterinary Review:

DEAR SIRS:—The March *Journal*, in its "review" column, made an attack on the Publication Committee of the A. V. M.

A., which carefully read reflected unfavorably on the committee, the association, and the veterinary profession in America.

It asserted in effect that the members of the association through their votes had elected a President who so disregarded the interests of the profession as to create a Publication Committee consisting of such men as Secretary Stewart, Treasurer Lowe, Professor Bell, editor of the AMERICAN VETERINARY REVIEW, Dr. R. P. Lyman, and the writer, who ignorantly, hastily and carelessly issued " Proceedings " from which important papers had been omitted, other papers had been ruined by editing, and the discussions and transactions had been falsified, hence association funds recklessly wasted and the association and profession in America dishonored.

But it was noticed that with the criticism the writer's name was linked in a manner suspiciously akin to numerous previous slurs in the same columns, and the question arose whether it was intended as a beneficent criticism for the good of the association and profession or a " stiletto " thrust at a member of the committee. Believing that if the *Journal's* attack were sincere a caustic rejoinder would cause its editor to sustain his charges, while if otherwise he would turn upon the writer in a storm of personal abuse and thus disclose what we suspected to be his real motive, we contributed to the REVIEW for June a communication justifiable only, if at all, by the ends sought. The reply of Dr. Hoskins in the August REVIEW fully accomplished the desired result and his motive stands out clear.

It only remains for us to correct one or two erroneous deductions, due perhaps to misreading of our communication in June REVIEW, when Dr. H. summonses us to present evidence that he has misappropriated association funds. We made no such charge. We suggested that he account for the destiny of some association proceedings. In the Report of Pub. Com. for 1893, there appears in Vol. XV., p. 391, *Jour. Comp. Med.*, the statement: " 50 copies (of proceedings 1893) remain in the sheet for future binding as required," beyond which we cannot trace them. Again, when Dr. Hoskins turned over the association property in his hands to the writer he reported the delivery under date of Nov. 21, 1897, among other property 170 paper-bound copies of 1893 " Proceedings," which, after they had been receipted for, were carefully examined, and it was found that 76 of the wrappers stamped as containing " Proceedings of 1893 " contained other matter of about the same bulk instead.

Probably Dr. H. can account for all these, but to do so he will have difficulty in showing that he, too, has not "omitted important papers" or "severely extracted others," or made incorrect returns in his stewardship.

Neither did we charge Dr. H. with having used association funds to pay for the "*Journal's* special," but simply for "a special," and based our query on the following:

I. Proc. U. S. V. M. A., 1891–92, edited by Dr. W. Horace Hoskins; p. 67, Secretary's statement for year ending September 14, 1891. To C. R. McKenzie, Dist. Pass. Agent, B. & O., $28.70.

II. In the archives of the association in Dr. H.'s handwriting: "Sept. 17, 1890. Secretary's expenses Feb. 2. Mr. C. R. Mackenzie, Dist. Pass. Agent, B. & O., voucher, $28.70."

III. Attached thereto the following voucher:

[*Copy*]

BALTIMORE AND OHIO RAILROAD COMPANY,
PASSENGER DEPARTMENT,
PHILADELPHIA, PA., FEBRUARY 2d, 1891.

Subject.—$28.70 owing on rate made for excursion.

Received from Dr. W. Horace Hoskins the sum of twenty-eight dollars and seventy cents, being amount due C. R. Mackenzie, Dist. Pass. Agt., B. & O. R.R., to make good deficiency in rate caused by lack of sufficient delegates to make up the required guarantee.

$28 $\frac{70}{100}$ [Signed] C. R. MACKENZIE,
Dist. Pass. Agt.

Respectfully submitted, W. L. WILLIAMS.

NEWS AND ITEMS.

THE average amount of sickness in human life is ten days per annum.

IN 1800 there were 220 horses in Australia; in 1900 there are 2,000,000.

A TRIAL of paper horseshoes, without nails, is shortly to be tried in London.

OVER 50,000 horses were lost up to April 1 by the British in the South African War.

FULLY 800,000 domestic animals, valued at $6,000,000, are annually devoured by wolves in Russia.

SEVERAL WOMEN have already matriculated for the next session of the New York-American Veterinary College.

DR. C. A. CARY, Alabama Experiment Station, has issued a valuable bulletin on "Texas or Acclimating Fever."

DR. H. D. HANSON, of New York, returned to the city about the middle of August, after six weeks' sojourn in the mountains.

DR. W. C. LANGDON has severed his connection with the North Dakota Agricultural College, and removed to Omaha, Neb.

DR. REGINALD WALL, of Carbondale, Pa., has engaged with the British Government in the transportation ot live stock to South Africa.

THE NEW STATE VETERINARIAN OF OHIO is Dr. J. C. Burnison, of Kenton, who will have his headquarters at the Wooster Experiment Station.

DR. HULBERT YOUNG, graduate of the U. of P., class 1900, has been appointed assistant veterinarian of the District of Columbia.

A VOLUNTEER in a Colorado regiment at Manila has been cured of stuttering by being shot through the throat by a Mauser bullet.

EIGHTY THOUSAND ELEPHANTS are annually required to supply the world with ivory, and most of them come from South Africa.

"WHAT is the difference between 'ill' and 'sick'?" "When my horse was 'ill' I sent for a doctor; when I got his bill it made me 'sick.'"

THE PARIS OMNIBUS COMPANY, during the Exposition, has 92 lines and 1500 vehicles performing 25,000 journeys a day, with a capacity of 1,028,000 passengers.

DR. M. H. REYNOLDS, of Minnesota, recently presented a paper on "Live Stock Sanitary Work" at the annual meeting in Duluth of the Minnesota State Medical Society.

MR. F. DRUMM, manufacturer of Drumm's celebrated thermo-cauteries, has removed his manufactory from 43 Park Street to 229 East 22d Street, New York City.

DR. J. I. GIBSON, State Veterinarian of Iowa, is one of the incorporators of the Iowa Stock Food Company, organized recently with a capital of $10,000.

DR. W. E. A. WYMAN, formerly located at Milwaukee, Wis., has been compelled by ill-health to relinquish private practice, and has removed to Burlington, Wis.

NORTH DAKOTA VETERINARY EXAMINERS.—Two candidates —D. D. McNaughton, of Devils Lake, and J. W. Hagerman, of Walwalla—passed the Board at its meeting on April 11, and were granted certificates to practice.

DR. JOHN E. BROWN, Oskaloosa, Iowa, Secretary of the Iowa State Veterinary Medical Association, has been on a month's vacation to his old home in Ohio.

We acknowledge the receipt of a season ticket and a courteous invitation to attend the Toronto Industrial Exhibition from the President, Prof. Andrew Smith, F. R. C. V. S. The fair occurs from Aug. 28 to Sept. 7, and the live stock exhibit is to be a special feature.

A Brooklyn (N. Y.) Veterinarian has agents going the rounds of large firms endeavoring to make contracts for treating their horses, in the manner that shyster lawyers obtain their damage suits. It is hard to make a silk purse out of a sow's ear.

Virginia State Board of Veterinary Examiners.—The following have been appointed by the Governor: Drs. Harry Bannister, Roanoke; H. L. Drake, Leesburg; Wm. H. Bolyn, Lincoln; Wm. T. Gilchrist, Norfolk; Thomas M. Sweeney, Richmond. The officers of the Board are Dr. W. T. Gilchrist, President, and Dr. H. Bannister, Secretary.

Maryland Veterinary Licentiates.—The Board of Veterinary Medical Examiners met in Baltimore in June and granted licenses to the following candidates: F. B. Berger, V. M. D., Baltimore; G. W. Horner, V. M. D., Finksburg; L. A. Nolan, V. M. D., Baltimore; and Hulbert Young, V. M. D., Washington, D. C.

Clara Barton writes: "Among the shocking and heart-rending scenes of the battle-field the screams of the wounded horses lingered more painfully in my ears, if possible, than the moans of the wounded men. They die slow and hard if left to themselves, and I have seen the vultures hovering and tearing at them while life yet remained."

Strongylus Contortus is reported by Dr. H. E. Titus, of Maxwell, Iowa, in the July *Journal*, to be the cause of many deaths in a herd of Angora goats. Post-mortem showed the fourth stomach full of them. An emulsion of turpentime and milk repeated at intervals of four days, until four doses had been given, saved all but one of those affected.

Drs. S. Stewart, of Kansas City, and James Law, of Ithaca, N. Y., at the request of *The Horseshoers' Journal*, contributed to the July number of that excellent publication opinions as to the effect of rubber pads upon horses' feet. Their conclusions were that many of the styles of pads were not injurious, but served many useful purposes.

"I Prize the American Veterinary Review very much. Have Vols. XXII. and XXIII. bound and find them very valuable books of reference. We have a very good bindery here, and each volume makes a very fine looking book. It costs me only $1.50 per volume, and when thus well bound they are at least worth six dollars per volume."—*D. D. Keeler*, *V. S.*, *Salem*, *Ore.*

DR. LIAUTARD writes that he has just recovered from nervous prostration due to the heat and overwork at the Exposition. It sounds strange to hear of a retired man overworking himself; but those who know the good doctor understand that the relinquishing of active practice simply meant more time to devote to some other work. And they also know that if he was working at the Exposition it was in the vicinity of the veterinary exhibit.

JOHN FAUSNER, D. V. S., graduate of the American Veterinary College, class of '98, died at his residence, 303 West Fifty-third Street, New York City, July 29, from septic infection following an operation for appendicitis on July 6, and it is stated that for two days his temperature registered 109°F. The death of this promising young veterinarian, who had just entered upon a successful career in private practice, is peculiarly sad, his demise following in less than a year that of his brother Oscar, also a veterinarian.

MERCK & CO. OPEN A BRANCH HOUSE IN CHICAGO.—The old-established and popular drug and chemical house of Merck is known to physicians and veterinarians all over the country wherever high quality and reliability are esteemed, and we are glad to announce to our Western readers that they have opened a branch of their great New York establishment at 227 Randolph Street, Chicago, Ill., where the same careful attention to inquiries and orders will be given as has always characterized their Eastern house. Mr. J. W. Parry, an old and trusted employé of the firm, will have charge of the new department.

FOOT-AND-MOUTH DISEASE PREVALENT IN EUROPE.—A dispatch dated Washington, August 11, says: Official advices to the Department of Agriculture report that foot-and-mouth disease is very prevalent among live stock throughout almost all of Europe except Norway, Sweden and Holland, and importation of animals from European countries, principally from Germany, France, Austria, Belgium and Switzerland, is being prohibited by this government. A special permit from the Secretary of Agriculture is required for the entry of all these animals subject to contagious disease, and applications for permits from the countries where the dreaded disease is prevalent are being refused by the department.

THE HORSESHOEING FRATERNITY have a much better method of supporting its journals than the veterinarians. A local association appropriates sufficient money to place its representative magazine, *The Horseshoers' Journal*, in the hands of each of its members. Both the organ of the craft and the craftsmen are thus benefitted and strengthened. By the way, few professions or trades have a more progressive and interesting exponent than the *Journal*. While veterinary associations can scarcely be expected to follow the example of the local horseshoers' unions, clubs composed of individual members could be the rule of associations rather than the exception, as at present, and the organizer of the club would receive liberal compensation from the publishers. Try it, and you will be doing your profession a real service.

A NEW TREATMENT FOR FISTULA.—Dr. W. T. Campbell, of Cincinnati, O. (*Journal of Comparative Medicine and Veterinary Archives*, June, 1900), states that veterinarians have long experienced the need of a remedy for fistula that would be less irritating than the ordinary caustics and still stronger in action than the mild antiseptics. Recently he has found protargol to be just the thing for such cases, since, although not as irritating as nitrate of silver, it possesses the same bactericidal effect. In several cases of fistulas of various origin he employed injections of a solution of protargol 10 parts, glycerin 50 parts, and water 40 parts, injected with a syringe three times daily. Under these injections in connection with internal medication the discharge rapidly subsided, and the fistula healed more promptly and permanently than had been previously observed under other forms of treatment.

THE "NEW YORK MEDICAL JOURNAL" CHANGES OWNERS.—The ownership of the *New York Medical Journal* has passed from the publishing-house of D. Appleton & Company to Mr. A. R. Elliott, an advertising agent of this city. We understand, however—we certainly hope—that the editorial department will remain in charge of the present editor, to whose able management for so many years the journal owes its high professional standing. This change has been anticipated for some time, for it was learned last spring, at the time of the temporary embarrassment of this old and honored publishing-house, that some of their publications, notably the *New York Medical Journal*, were financially unprofitable. Notwithstanding an actual subscription list of something over six thousand, and an advertising patronage of upward of forty pages per week, the expenses of publishing this journal were considerably in excess of the income from all sources, and the receiver, therefore, decided to dispose of the property, with the result above stated. It will doubtless be a matter for surprise to the great majority of the profession to learn that a medical journal apparently so prosperous was financially a failure, and it will perhaps dispel the idea which seems to prevail that the profits of publishing medical journals are fabulously large. Those who have had experience in such matters know well that the publication of a medical journal is very different from that of an illustrated magazine for the general public. The latter can be sold at a price irrespective of the cost of manufacture, and thereby secures an enormous circulation, the profit on the undertaking being derived wholly from the advertisements. The number and variety of the latter which can be secured for a monthly magazine are practically unlimited, whereas in the matter of reputable medical advertising there is a very sharply defined limit. This change of ownership of the *New York Medical Journal* may serve to impress the truth of the facts just stated upon the minds of the more or less experienced financial backers of some other of our contemporaries which are now being published at a heavy loss.—(*Medical Record.*)

ASSISTANT WANTED.

A veterinarian wanted to act in capacity of House Surgeon and Assistant; prefer middle-aged married man that has had some practice. Address, T. W. SPRANKLIN, D. V. S., Maryland Veterinary Hospital, 1311 to 1321 Harford Ave., Baltimore, Md.

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,

Veterinary Publisher, and dealer in Veterinary Books, Drugs and Instruments, is the authorized agent of the REVIEW in Chicago and the Middle West, and will receive subscriptions and advertisements at publisher's prices.

SECRETARIES OF V. M. ASSOCIATIONS

Can make money for themselves and do much good to their profession by getting up Subscription Clubs for the REVIEW. Write us for club rates and full information.

REVIEWS FOR EXCHANGE.

I have these duplicates: Vol. XVIII, July (1894); Vol. XV, April and May (1891). I need the following: Vol. XIX, September and October (1895); Vol. XVII, January (1894). Would like to exchange with some one having duplicates, etc. HUGH THOMSON, V. S., Sharbona, Ill.

NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the AMERICAN VETERINARY REVIEW. Any one having an extra copy of that number please address H. D. STEBBINS, V.S., West Winfield, N. Y.

BACK NUMBERS REVIEW FOR SALE.

Volumes 2, 4, 8, 9, (complete); April, '79, '81, '82, '83; May, '79, 81; June, '79, '81; July, '79, '81; August, '79, '81, '83; September, '79, '81, '83; October, '79, '81; November, '79, '81, '83; December, '81, '82, '83; January, '80, '82, '83, '84; February, '80, '83, '84; March, '83, '84.

Apply C. E. C., 141 West 54th street, New York City.

AMERICAN VETERINARY REVIEW.

OCTOBER, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

THE ASSOCIATION SEASON.

The month of September seems to have been settled upon as the time for holding the annual meetings of the large veterinary associations. This has become the custom, not by coincidence, but from an accumulation of experience, which has taught us that at this season veterinarians can more easily and are more willing to relinquish their practical professional duties for a brief period than at any other time of the year. The majority of practitioners are located in the cities, and a large proportion of their *clientèle* are still lingering at mountain or seaside resorts; the heated term is waning, with its attendant emergency cases; the local tradesmen are still intoxicated by the lethargy of summer stagnation; the green horse, with his acclimating ills, has not yet left his country home; and all thoughts are of a respite from labor in anticipation of a brisk fall demand upon the energies of the veterinarian. He feels worn and languid from the long year's work, and appreciates the possibility that congenial recreation away from the cares of practice will better prepare him for the activities of the approaching season. Thus it is that in the first week of September we find veterinarians hurrying off in various directions—some to the national, others to State or local gatherings; while again others, having friends in distant States, will avail themselves of the dual privilege of performing a social function and of attending the meeting of an association in a sister State.

But wherever their footsteps may lead them they are sure to receive a cordial welcome; and to return refreshed, enlightened, and made better in every sense by the needed rest and increased knowledge.

Since the September number of this journal was issued the four largest associations in this country have been in session, all of which report increased attendances and absorbing interest in the proceedings. In the second week of September the American Association held a most important and successful four-days meeting in Detroit, Mich.; the following week witnessed the two large State conventions of New York and New Jersey, which were followed by that of that sterling organization, the State Association of Pennsylvania, to say nothing of many minor assemblages of local interest.

The REVIEW is enabled this month to tell the story of the first two meetings, and trusts to give the details of the others in its next issue.

ANTISEPTIC VETERINARY SURGERY.

The spirit of antisepsis dominates every other consideration in modern veterinary surgery. Its principles have long been recognized and acknowledged to be based upon demonstrated truths, even though its application has been thought by many to be impractical in the surgical treatment of the lower animals. The American veterinarian could not long permit his ingenuity to lie under such a stigma, however, and ways and means have been found to adapt the true principles of antisepsy to a large proportion of the operations which he is called upon to perform, and with as much regard to detail as is exercised by the surgeons of human medicine, and with results which, considering the obstacles encountered, will not suffer by comparison. Our literature is teeming with articles upon this subject, most of them having for their object the practical application of the principles of antisepsis, and from these foundation stones there will gradually be built the completed structure. While we are not devoid of text-books upon this subject, they teach more the principles than the practice, and the only channel through which the student can keep abreast of the kaleidoscopic transformation that is daily unfolding, is the pages of contemporaneous literature. He who would be of the modern, up-to-the-hour class of veterenarians must read the professional periodicals, and read them between the lines. The "Department of Surgery" in the REVIEW is contributing to the general fund of knowledge on this subject probably as much as any other source, and we commend the work which the Drs. Merillat are doing as of the highest order, being performed with that regard for detail and precision which should characterize all such productions. From many sources are contributed individual articles bearing upon different phases of the subject, and all having their value as bearing upon the whole question. At the recent meetings of the American and the New York State Veterinary Medical Associations the subject received the greatest consideration, both in the literary programmes and in the clinical demonstrations. Upon all sides there seems to be a thirst for improved methods of surgery, and with anæsthetics and antiseptics we are safe in stating that the veterinary surgeons of to-day are the peers of those of our sister profession.

DR. A. YOUNGBERG, Lake Park, Minn., will shortly contribute to the REVIEW the details of his remarkable success with the Schmidt treatment for parturient paresis. At the Detroit meeting he informed us that out of 80 cases treated all were saved but 2—the most wonderful record we have yet heard of from the use of the iodide of potassium. There are certain rules which he adheres to in the technique of the treatment, and at our solicitation he has consented to place them before the profession.

ATLANTIC CITY, N. J., is being strongly put forward for the meeting of the American Veterinary Medical Association of 1901. Both the New Jersey and Pennsylvania State Associations, at their annual meetings last month, passed unanimous resolutions inviting the National Association to come to Atlantic City, putting forth the advantages offered, the fact that New Jersey has never been honored by its presence, and that the Pan-American Exposition at Buffalo will insure reduced transportation.

THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY is taking hold of the Army Bill in earnest, having appointed a number of delegates in every congressional district to further its interests with the representatives.

ORIGINAL ARTICLES.

SPAVIN: ITS ETIOLOGY AND TREATMENT.

BY W. J. MARTIN, M. D. C., KANKAKEE, ILL.

Read before the American Veterinary Medical Association, Sept. 5, 1900.

Etymology of the Word Spavin.—Old French, *Esparvain;* New French, *Esparvin;* Spanish, *Esparavan;* Italian, *Spavenio* and *Spavento.* From Old French, *Espervien;* Old High German, *Sparwari*, a sparrow hawk, so named from the peculiar gait of a horse lame from this disease, and which makes a horse lame from this disease raise the lame leg like a sparrow-hawk.—*Webster's Dictionary and the Standard Dictionary.*

Definition.—Spavin is an inflammatory ostitis affecting the component structure of the bones and also of the ligamentous tissues that compose the equine tarsus, and which sooner or later (in the majority of cases at least) produces ossific ostosis and anchylosis of two or more bones of the articulation. This anchylosis may be partial or complete. The ostitis and accompanying exostosis usually first appears at the inner angle of the cuneiform magnum and the articular facets of the parvum and the inferior surface of the scaphoid bones; though quite frequently the disease involves the articulating surfaces of the scaphoid, inferior surface of the astragulus and cuboid bones.

Another though less common seat of the disease is the surfaces of articulation between the astragulus and os calcis, and in this location the disease usually partakes of the nature of a true form of osteoarthritis, and often terminates in caries and necrosive ulceration within the joint.

Pathology.—The inflammation occurring in spavin may be considered of two distinct forms, namely: acute and chronic. The disease may arise from two causes, namely: Idiopathic and traumatic. Under the first head may be included all hereditary predispositions to osseous exostosis, due primarily to defective anatomical construction of the skeletal framework, the usual result of which is endositis, periostitis and osseous exostosis of the bones of the articulation. Under the second head we include all external agencies that directly or indirectly cause the disease, such as concussion, severe strain or stretching of the ligaments of the joint, more especially the interosseous ones; injuries, such as kicks, wounds, etc.; though in my experience spavin is rarely due to injuries of a direct nature, though an injury may be the indirect cause of spavin, as where the opposite limb has been injured and the animal in favoring it throws the entire weight of the posterior part of the body upon the sound limb, which in time may become affected with spavin.

The question is often asked, Why does spavin most generally appear at the junction of the cuneiform magnum and parvum? In viewing a tarsus in profile, we notice that the bones of the joint do not rest upon a plane surface, but incline gradually from the external part of the joint to its internal portion; we also note a greater development of the bones composing the external part of the tarsus than those of the internal portion. This removes slightly the line of gravity from the central part of the joint towards its inner part, and as a result the line of weight descending from the tibia to the surface of the astragulus is thrown in an oblique manner mostly upon the inner portion of that bone, and is in turn transmitted to the inner part of the scaphoid, cuneiform magnum, and parvum. The parvum being the slightest constructed bone in the joint, naturally is the first to become the seat of inflammation from the unequal distribution of weight.

The divergent views held by some of the most eminent members of the profession in regard to the pathology of spavin, renders the subject a most difficult one for the general practitioner to approach, or even to venture an opinion on. Some hold that it is the ligaments of the joint in every case that are first to become the seat of the inflammatory action, and from them it next extends to the substance of the bones. Others claim that the disease invariably originates in a strain of the inner tendon of the flexor metatarsi muscle; while others claim, among them being the distinguished Dieckerhoff, that the inflammation is first set up in the sheath of the tendon of the flexor metatarsi muscle, though why inflammation of this sheath should cause spavin, when it rarely causes even slight lameness, appears strange to me. Our own opinion is that spavin is nothing more nor less than an ostitis of the bones of the hock joint; the ostitis may originate within the cancellated structure of the bone (endositis) or on the external surface of the bone (periostitis). Endositis is the form present in idio pathic spavin, while the periostitic form is due to traumatic causes, as strain of the ligamentous structure of the joint, from concussion, etc.

In endositic inflammation of the bones of the tarsus the delicate membrane lining the Haversian canals becomes highly congested and inflamed; this inflammation in time spreads from within outwards, and affects the space between the compact bones and the periosteum. As the articular cartilage of a joint may, for all practical purposes, be considered a continuation of the periosteum, it can be readily seen how endositis may rapidly spread throughout an articulation. One important fact in connection with the pathology of spavin or other forms of bone disease should be borne in mind, and that is, "that it is in the soft parts of bone, the periosteum, the medullary membranes, and the delicate connective tissues which pervade the

Haversian canals and cancelli, that the inflammation occurs, and that the pathological process, though somewhat modified by the hard and resisting nature of the osseous framework, is essentially similar to that which occurs in the soft tissues."

In the endositic form of spavin, as the inflammation advances the peripheral lamellæ and the articular cartilage become involved in the destructive metamorphosis, in which the canaliculi of the opposing bones are laid bare by the constant friction and irritation, thus establishing a vascular communication between the Haversian canals and lacunæ of the bones. These vascular openings pour out an effusion of bone-forming lymph, which in time firmly cements the diseased bones together. We see this condition finely illustrated in the specimen before you, in which it will be seen that the scaphoid, cuneiform magnum and parvum are firmly cemented together without there being the slightest periostitic enlargement on the external borders of the bones.

In the periostitic form of spavin the inflammation advances from the periphery of the bones to their centre, and, as before mentioned, is usually due to external influences, such as strain of the interosseous ligaments, articular arthritis, violent over-contraction of muscles or tendons implanted in the periosteum of the bones. "The pathological changes in circumscribed periostitis consists of an inflammatory transudation into both the superficial and the deeper strata of the membrane, forming an enlargement sometimes termed a 'node.' This transudation consists of fibrous lymph and leucocytes, which serve to form a prominence over the surface of the bone."—Agnew. This inflammatory node in the horse, when affecting the bones of the tarsus, constitutes the osseous exostosis termed spavin.

Etiology.—Spavin is a disease due to domestication. It is rarely seen among equidæ living in a state of nature. The horses that live on the plains and in the valleys of the Rocky Mountain regions of the United States, Canada and Mexico are rarely affected with spavin. I am reliably informed that among horses running wild on the pampas of South America it is a very rare sight to see one affected with spavin.

During the several years in which I have been engaged in the study of the osteology of fossil equidæ I have examined the hock bones of fossil horses from nearly all parts of the world without being able to discover any trace of a disease among them similar to spavin in the domestic horse. It is true that these fossil horses are of a distinct genera to that of the domestic species, yet the bones of the hock are almost identical with those of the domestic animal. More especially is this true of Hipparion.

From a close study of the pathology of spavin it will be seen that it often becomes a difficult matter to ascertain the true cause of spavin. In the idiopathic form, heredity undoubtedly plays an important part, because there is probably no domestic animal so prone to morbid ossific enlargements as the horse. In my opinion the most common cause of spavin is a defective anatomical conformation of the bones of the entire limb as well as those of the tarsus, and in tracing the cause of spavin lameness we should view the limb as a whole rather than at any one point. We should note the formation of the muscles of the limb, the manner in which they perform their functions, as well as their relation to the bones of the limb. In a word, take a generalized view of the whole mechanical construction of the diseased leg.

In examining a hock affected with spavin, we notice in the majority of cases a peculiar rounded form of the superior head of the large metatarsal bone; this is anomalous, and gives to the scaphoid and cuneiform bones the appearance of being top-heavy. We almost invariably find such joints the seat of spavin. In the bent or "sickle hock," the powerful action of the extensor muscles of the limb, when the animal is subjected to hard and fast work, will, by the great pressure and contraction on the articulating surfaces of the bones and ligaments, excite ostitic inflammation. Some pathologists claim that spavin is due to incomplete formation of the bones of the hock, and hence should be viewed as simply a neoformation of bone to complete the bone-forming process.

It is claimed by some German authors that large horses, with powerfully developed muscles of the hind quarters, are, from the powerful mechanical action of flexion and extension of the limb on the hock, much predisposed to spavin, also that long, weak-backed animals are often affected with the disease. I have often seen spavin occur in mares that had passed through a severe attack of parturient laminitis, in which the major portion of the weight of the body was thrown upon the posterior part of the body. In this affection, articular arthritis is a common sequel and often ends in ostitis and anchylosis.

Semiology.—Mr. Percivall, in speaking of the symptoms of spavin, says: "The symptoms of spavin are, in general, plain and simple and unequivocal." With all due deference to such a distinguished author, I must say that in my experience, where the exostosis is not yet present, spavin is one of the most difficult forms of lameness to properly diagnose. There is, perhaps, no other form of lameness of the horse in which the practitioner should be more guarded in his opinion, moreover, the young and inexperienced one.

The idea that certain characteristic movements of the hock joint are always indicative of spavin lameness is in a great many cases erroneous. A much more certain sign of spavin lameness would, in my opinion, be the wearing away of the toe of the shoe or hoof, as this condition is almost invariably present in cases of spavin lameness, where the exostosis is not present and the ostitis is not extensive; being confined to the inner angle of the scaphoid and the cuneiform bones, the diagnosis can be made certain only by inference, such as the history of a slight lameness, which would disappear after a certain amount of exercise had been taken. The absence of any pathological lesion around the foot, such as sidebones, ringbone, tendonitis, curb, patellar lameness (gonitis chronica), hip-joint disease, or long standing lameness with atrophy of the gluteal and patellar muscles from repeated attacks of azoturia, etc. All these conditions should be taken into consideration by the practitioner. The so-called "spavin test," in which the lame limb is strongly flexed and immediately after the animal is made to trot briskly, is, in my opinion, nearly worthless for diagnostic purposes. I have seen this applied to horses that were perfectly sound, and yet they would move off quite stiffly for a short distance, and markedly so if aged. Atrophied muscles in the patellar and gluteal regions are rarely due to true bone spavin, this condition being most often seen in cases affected with rheumatoid arthritis of the hock and with gonitis chronica of the patella.

A horse suspected of spavin lameness should, if possible, be seen by the practitioner at rest in the stable; it will there be observed that the animal will flex the suspected limb much more than its fellow. This is done in a peculiar manner; the point of the toe is carried outward, and the heel of the foot, owing to the action of the abductor and the adductor muscles of the limb, will be rested upon the upper part of the opposite hoof. At this time, if the animal is made to move quickly over in the stall on the sound limb, the movement will be accomplished with a sort of hopping action, and the lameness is quite marked as a rule. The animal moves with much more facility when made to move towards the lame leg.

When the animal is trotted to halter the lameness is marked by a spasmodic or convulsive contraction and flexion on the hock joint and a rising and falling of the hip of the lame side. The limb when first placed upon the ground will rest upon the toe; but as the exercise is increased the animal will gradually place more and more of the foot upon the ground, until he is able to place the entire weight upon the heels. During this movement the leg, when carried in extension, does not move through the full segment of its circle of extension and flexion as in a healthy joint. This conditional movement is most marked just prior to the appearance of the exostosis.

Ocular Inspection and Palpation.—In order to better observe the presence of an exostosis upon a suspected joint, have the animal placed upon a level footing and with both limbs as nearly together as possible; stand several yards in front of the animal, and looking through the front legs, compare the outline of each joint with that of the opposite one; carefully note any irregularities of the lame joint, and compare them closely with the bones of the sound one. Then step to one side, nearly on a line with the shoulder of the sound side, and *vice versa*, when any enlargement on the surface of the lame leg can readily be detected. Palpation for spavin between the scaphoid and the cuneiform bones of the joint and when the exostosis is not well marked, is of very little value. When the ostitis is confined to the articulating facets of the astragulus and os calcis, palpation by the trained and sensitive fingers of the surgeon will readily detect any existing inflammation in the parts.

The question is often asked, how long a period of time will elapse from the beginning of spavin lameness until the exostosis will become visible. In some rare instances but a few weeks will intervene before the exostosis is well developed, though in my experience this is an exception and not the rule. In most of the cases coming under my observation the lameness may exist for several months, and I recall one case in particular in which there was persistent lameness for three years before the exostosis made its appearance.

In pronouncing a horse spavined in which there is no visible exostosis present, we are often met by the assertion of interested parties, that if the horse has a spavin coming on the lame leg, he must certainly have one on the well leg, as both joints are exactly alike. I wish to state, more especially for the benefit of the young practitioner, that in horses with coarse hocks and in which there is an undue prominence of the borders of the scaphoid and cuneiform bones, and even if there is not the slightest lameness, he can in nearly every case safely make the statement that such a hock is already affected with spavin. It is rare in my experience to find an animal affected with spavins on both hocks to be lame in more than one joint at a time. Anchylosis of the bones of the hock without lameness is by no means confined to adult animals; I have seen well marked exostosis and anchylosis of the scaphoid and cuneiform bones in a colt but a few days old. This diseased condition can be accounted for in no other manner than that the diseased state must have taken place during the intra-uterine period of its existence.

Treatment.—The treatment of spavin has varied but little from the fundamental methods laid down by Youatt and Percivall; and that this method was based upon a correct scientific knowledge of the pathology of the disease is borne out by the experience of nearly every practitioner from their time to the present. The most essential requirement in the treatment of spavin as well as in all other joint diseases is rest. By rest I do not mean the turning of the animal out in a pasture, where by running and jumping in play the animal has every facility for keeping the diseased bones in a state of constant irritation. If a small box stall with a ground floor is not available, I have the animal placed in an ordinary single stall; bring the feet into proper shape by levelling and proper shoeing. There is no particular pattern of shoe required for this purpose beyond that which will place the bones of the joint upon an even surface.

In the early stage of the disease, if there is severe inflammatory action present, applications of hot or cold water may be made to the joint, though usually I consider this a waste of valuable time, because the majority of the cases met with have already passed through the acute stage. It is an incontrovertible fact that horses in country districts are much more easily treated and cured of spavin than are horses in cities; also, that the exostosis is much smaller in the former than in the latter.

The question is often asked, Should we make any distinction in the choice of a therapeutic agent when treating ostitis or periostitis existing in a hock joint? I should answer no. While articular arthritis existing between the astragulus and os calcis is a much more severe disease than where the disease is confined to the border of the cuneiform bones, yet the therapeutic agent that will relieve the one will answer for the other equally well.

What form of therapeutic agents are the most efficacious in combatting spavin? We answer, the chemical ones, such as mercury, iodine, and the mineral acids, etc. Cantharides, which occupies a prominent place in many of our text-books for the treatment of spavin, is, in my opinion, of very little value for this purpose.

Our object in applying chemical agents to a joint affected with spavin is, as every practitioner knows, not with the object of removing the osseous exostosis, but merely to assist nature in hastening the process of anchylosis; because a joint once the seat of inflammatory ostitis can never be restored to its pristine condition.

Of the above mentioned chemicals I prefer the bichloride of mercury in solution, supplemented with camphor and oil of turpentine. The following is the formula: ℞ Hydrarg. chlor. corro., ʒ i; sp. vini. rect., ℥ vii; hydrochloric acid, ℥ i. Mix. Add the acid to the spirit and dissolve the mercury in the mixture, then add sp. vini. rect., ℥ xxxvi; gummi camphoræ, ℥ iv; olei terebinthinæ, ℥ vi. Mix. Dissolve the camphor in the turpentine and then add to the spirit. This fluid is dispensed in six or eight ounce bottles, with instructions to apply a portion to the joint once or twice a day for a period of from two to four weeks if necessary. I have found that this compound has a tendency to quickly relieve the pain of spavin, and, furthermore, it is a much more satisfactory method than that of firing every case in the beginning of the disease, as many cases will recover without blemish under this form of treatment. I find in country districts a considerable prejudice against the use of the hot iron in treating spavins, and in the case of valuable animals the owners will often resort to nearly every other means before resorting to its use. However, I am a firm believer in the efficacy of the hot iron in the treatment of spavin after other remedial agents have failed. The pointed pear-shaped iron is the one preferred by me, and during the operation it is introduced deeply into the exostosis.

Cunean Tenotomy.—In cases in which the exostosis is very large this operation often proves of much benefit, by lessening the intense pain and irritation of the mechanical pressure of the fibres of the metatarsi muscle over the osseous enlargement. The operation is quite simple and requires but very little attention afterwards.

Tibial Neurectomy.—Resection of the tibial nerve for the cure of spavin has been extensively practiced by European veterinarians with somewhat varying success, and at the present time the operation is not thought to be of much benefit. Prof. Bosi, of the Bologna Veterinary School, has lately recommended a double neurectomy at the hock for the cure of spavin, and it is claimed that 90 per cent. of the cases so operated on have been cured. The operation consists in a resection of the tibial nerve and the peroneal nerve.*

RECENT VETERINARY LITERATURE ON SURGERY.

By M. H. Reynolds, University of Minnesota, Experiment Station, and State Board of Health.

Presented to the Minnesota State Veterinary Medical Association, July 11, 1900.

The following summary of an article by Huber in the *Journal of Physiology* for February, 1900, confirms modern teaching on the subject of regeneration of nerve fibres, and is especially interesting, perhaps, to those who are doing frequent neurectomies: "(1) The motor and sensory nerve endings of voluntary muscle degenerate after severance of the muscular nerves. The motor nerve endings and the extreme distal portion of the motor nerves degenerate earlier than do the sensory nerve endings. (2) The motor and sensory nerve endings in voluntary muscle may, under suitable conditions, regenerate completely. The motor nerve endings regenerate more quickly than the sensory nerve endings. (3) These experiments, it seems to me, show clearly that the regeneration of a degenerated portion of a peripheral nerve is brought about by the down growth of the axis cylinder of the central, undegenerated portion of the nerve fibre."

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* See American Veterinary Review for August, 1900.

The Veterinarian (London, May) contains an interesting article on perforating wounds of the neck with rupture of the pneumogastric and sympathetic nerves. This case is especially interesting as the reported symptoms were referable mainly to the alimentary canal. Certain secondary symptoms appearing later involve the respiration and heart action.

In the same number of this journal is reported a study by Hocke of the way in which the lesions of actinomyces spread. These conclusions may be briefly but rather imperfectly summarized as follows: (1) That there is a constant struggle between the leucocytes and the invading organism. In some cases the leucocytes seems to incorporate within itself filaments of the mycelium, and increase greatly in size. It may be so large that it is unable to reënter the blood stream. If the leucocyte succeeds in destroying the parasite, the leucocyte then returns to the normal dimensions and conditions, but in many cases the leucocytes are not victorious, and then become victims of the parasites which they attempt to destroy. Such leucocyte cells then die, but the actinomyces send out branches and continue to develop, forming new colonies. The leucocyte or white blood cells in this way appear as active agents in spreading the infection. This explains the rather slow invasion of healthy tissue immediately bordering on the seat of original inoculation.

Surgery taught by cinematograph, practically the French name for kinetoscope. Dr. Doyen, Paris, in a French scientific journal discusses his ideas and methods of teaching surgery by the use of these moving pictures, reproducing the operation as actually performed. In this way a very large number of students arepermitted to follow the operation very closely. An actual operation can be performed and then afterwards reviewed and fully discussed by the aid of this instrument. As a rûle comparatively few students are able to take actual part in critical operations or even to watch closely the various proceedings. The first illustration of the use of this instrument in teaching surgery was made before the British Medical Association in 1898. In a French medical college, a course in the study of surgery has been established, to be illustrated by means of this instrument. Students can not only witness the operation in this way, but the operation can be as perfectly reproduced thousands of miles away, and it is possible that American surgeons can save considerable of their time by studying the operating methods in this way at home.

A German surgeon has developed a device which enables the interior of the stomach to be photographed for the purpose of diagnosis. The camera is exceedingly minute and intended to be swallowed by the patient. As soon as it reaches the stomach the walls are illuminated by means of a small electric lamp. The narrow film, 20 inches long, is connected with a cord, the cord to be pulled by the operator. Conducting wires are of course swallowed with the camera and cord.

The June number of the *Journal of Comparative Medicine and Veterinary Archives* publishes a practical article by Dr. Lowe, of New Jersey, detailing actual experiences with median neurectomies.* It is scarcely necessary to call attention to the great importance of this kind of information. Dr. Lowe first gives in detail methods of confining the patient and performing the operation. There is given nothing new in either, but the details are quite carefully described, so that one not familiar with the operation could quite easily follow the various steps as described. I would suggest in criticism that if the incision is made a trifle lower, the nerve is more easily found; in fact, at a somewhat lower point the nerve can in most subjects be clearly defined by sense of touch and the incision made directly upon it. I also prefer to hold the lips of the wound open by a simple retractor made from common rubber bands with a small pin hook at each end. This is self-retaining, no difference how much the horse struggles, and there is no blunt tenaculum or assistant's hand in the operator's way. Dr. Lowe urges a sur gically clean operation, followed by cold water irrigation, if weather permits; and with this treatment expects to have complete healing in about two weeks. In this article seven operations are reported with the following results: two cases of ringbone, operations failed to give good results, there being anchylosis and of course some mechanical lameness; one case of navicular disease, successful; four cases of tendonitis, all successful. Dr. Lowe concludes with the suggestion that we should not perform this operation when it is unnecessary—a very good suggestion.

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* This article was published in the July REVIEW.—EDITOR.

In the same number of this journal Dr. W. T. Campbell reports upon protargol as a new treatment for fistula. This is described as a light yellowish powder, freely soluble in water and a derivative of silver, less irritating than the nitrate. Dr. Campbell reports two cases of fistula of the withers and one quittor treated with this agent. I might suggest in criticism that the results obtained from two cases of fistula cannot be taken as evidence of much importance in estimating the value of a new treatment; but, on the other hand, Dr. Campbell is to be commended for reporting his experience, and if members of this association decide to do any experimenting along this line in the near future, we should all be glad to learn their results at our next meeting.

Dr. L. A. Merillat, in the May number of the AMERICAN VETERINARY REVIEW makes some interesting statements concerning the use of chloroform upon horses. He notes that the time required for reaching surgical anæsthesia is usually stated as from 15 to 40 minutes. Möller gives 7 minutes with 35 grammes of chloroform as his shortest record, and the average among 126 patients varied from 18 to 22 minutes. Commenting upon this, Merillat states that he has never failed to obtain profound anæsthesia in less than three minutes and frequently in 30 seconds. After some discussion and comparison of slow and rapid methods, he concludes that the dangers are scarcely worth mentioning if proper care is taken, and that laboring over a patient for 20 to 40 minutes is at least unnecessary.

A case of collection in maxillary sinuses of a cow is interesting chiefly on account of its rarity. Such a case is reported in the same number of the REVIEW. I have never seen a case of this in cattle practice, and have wondered whether other members of the association had been more fortunate.

Dr. W. Hunting has a very interesting article in the May *Veterinary Journal* (English) on shoulder lameness. He first discusses the indefiniteness of the term. The chief interest and value of his article lie in the thoroughness with which he attempts to upset most of our previous teaching and opinions concerning this peculiar trouble. He cites the various symptoms that have usually been considered diagnostic of shoulder lameness, and in nearly every case points to some other form of lameness which produces the same symptoms. For instance, concerning the good old symptom, circumduction of the leg, he shows that some forms of lameness having seat in the knee or foot occasionally show this symptom. Abduction is discussed as quite common in foot troubles and even to injuries of the pectoral muscles. Motion and manipulation are discussed as deceptive. The author admits the use of these tests, at the same time confessing that he rarely succeeds in getting any satisfactory information by them. Position of the limb at rest is considered very helpful, but on the other hand it utterly fails in many cases to give any useful information.

I presume that most members of this association have read the AMERICAN VETERINARY REVIEW for June, and have thought over Dr. Hannawalt's article on chromic acid. To those who have not I would simply report that the Doctor recommends this agent quite strongly, especially as a caustic in the treatment of such cases as fistula and other chronic sores. He gives some cautions concerning the use of the drug, particularly as to severe action upon the operator's hands. He recommends its cautious use in preparation of .2 per cent. solution or 1:500.

In the same issue of this journal there is quite an article on paraldehide in veterinary practice, taken from a foreign journal.

This drug is ranked by its chemical properties as standing between alcohol and ether. Diluted with water or glycerine, it has a peculiar odor, antiseptic and hypnotic action. The drug is described as not satisfactory for producing deep sleep, but as acting peculiarly on the sensitive nerves—30 grammes, approximately an ounce, given in capsules permitting painless performance of severe operations.

The following notes concerning local anæsthetics are taken mainly from the *Journal of Comparative Pathology and Therapeutics:* Cocaine dissolves rapidly in either hot or cold water, changed chemically by boiling and rendered ineffective. Should usually be made fresh, but when 2 per cent. of carbolic acid is added it keeps fairly well. The immediate local effect occurs from 2 to 5 minutes, about 15 minutes required for anæsthetizing the larger nerves, like the digital or plantar. Anæsthesia lasts from 20 to 30 minutes. Extent of area anæsthetized depends upon the way the circulation is controlled and upon the tissue into which it is injected. Eucaine used alone is slower in action and does not produce as complete anæsthesia, but the effect when once produced lasts much longer. It has the advantage over cocaine in that it may be boiled for sterilization without decomposition. It has the further advantage of being considerably cheaper than cocaine. A mixture of eucaine and cocaine is in some respects preferable to either alone, especially as effect lasts longer. Holocaine has something of an antiseptic action, and like eucaine is not decomposed on boiling. It is not suitable for general use, as it is considered somewhat more dangerous than cocaine. Used chiefly for the eyes; not very commonly used. Orthoform was more recently introduced; seems to be especially valuable for large surfaces of wounds and mucous membranes. Non-poisonous, can be used over large surfaces very safely. The writer has recently commenced the use of chloretone, but is not as yet prepared to express any opinion as to its value.

Dr. E. Merillat gives some interesting surgical "nevers" in the June REVIEW. Several of these appeal to me quite strongly.

For instance: "Never operate without exhausting every possible means of making a correct diagnosis." "Never operate without familiarizing yourself with the operation to be performed." "Never foster dexterity (and speed) at the expense of judicious technique." "Never perform an operation requiring delicate manipulation without the aid of an anæsthetic." To these I would like to add: Never commence an operation until you are ready. I occasionally violate this one myself, but nevertheless I dislike to see a surgeon commence an operation, then chase off first after one instrument and then another, stopping to hunt for bandages or learning for the first time that he has no cocaine or his hypodermic needles are all lost or broken. And I would add one other to this list: Never pick or piece. Make clean, free incisions as long as needed at the first stroke, and do not keep on picking and picking after the operation is practically finished and the horse should be released.

Members of this association who are especially interested in practical disinfection should secure a copy of the Lomb Prize Essay on "Disinfection and Individual Prophylaxis against Infectious Diseases," by Dr. Sternberg. This essay was originally written in 1886 and soon became an accepted authority and guide for practical disinfection. The author has recently made a revision which includes newer antiseptics and newer methods, bringing the whole thing up to date. Copies may be secured by writing H. Lomb, Supt. of Essay Dept., American Public Health Association, Rochester, N. Y.

The fifth series of 100 laparotomies are reported by Dr. Heinricius, quoted in the *St. Paul Medical Journal* for April. This series of 100 laparotomies were followed by four deaths. At least two were inevitable, as shown by post-mortems. I bring this item before a veterinary association for two reasons: 1st, because we should all be interested in problems of comparative medicine; and, 2d, as calling attention to the wonderful strides that have been made in human surgery.

I have been somewhat interested in an article published by the *Medical Record*, April 7, 1900, on "Summary of Cases of

Caricoma and Sarcoma Treated by Cataphoric Sterilization." This process may be briefly described as the diffusion of nascent mercuric salts produced by electrolysis, somewhat similar to the process used by dentists in producing anæsthesia of a very sensitive tooth by means of cocaine and electric current. Of 37 cases reported, 10 are given as cured, uncertain 7, failures 22. Many of these cases are of course necessarily hopeless. Members of the association who are especially interested in this could doubtless secure for perusal a copy of the *Medical Record* from some neighboring physician, as the *Medical Record* is very widely circulated among physicians.

The Veterinarian (English) for June discusses under "Clinical Cases," by Prof. Cadiot, translated by Dr. Dollar, among other things an operation for rupture of perineum. I consider this an operation which could frequently be performed with complete success, and yet one which is very commonly neglected as hopeless or useless. Prof. Cadiot reports operation on a complete rupture of the perineum but which did not involve the rectum. The length of time which had elapsed since the accident had occurred is not given, but it is mentioned that an operation had been attempted by another veterinarian which resulted in failure. It was probably therefore what we might call an old case. From the 19th to the 26th of October the patient was prepared by warm injections of antiseptic solution and had sodium sulphate internally. The surfaces involved in operation were thoroughly washed and then disinfected. The skin and mucous membrane were divided throughout the entire length of the tear, and suitable surfaces were secured for healing by removing a strip of mucous membrane extending to the skin edge. The surfaces were then brought together by a double suture, which is carefully described in the article. Subsequent treatment is described until Nov. 3, at which time union was complete, except the upper part of the wound, where a few of the deep sutures had given way. The upper margin of the wound was again prepared and sutured, the patient being discharged as cured on Dec. 6. I have operated on several of these cases and all except my first case have been successful. I do not employ the double suture as described by Prof. Cadiot, but merely the old-fashioned quill suture, deeply inserted.

PARTURIENT APOPLEXY.

By Dr. W. A. Thomas, of Nebraska.

A paper read before the Nebraska State Veterinary Association, February, 1900.

This disease or lesion affecting our domestic animals occurs principally in the cow. It has baffled the skill of veterinarians ever since good cows were known, and not infrequently has the owner of one of these most useful animals had his highest hopes suddenly turned to disappointment and grief. He looked with pride on a noble cow, a fine calf, and thought of the possibilities of an abundance of rich milk. He goes out again to look at his prize, and what has happened? She is prostrated and already half unconscious; pays no attention to his approach nor to the calf that plays about the yard. There is no time to lose, the doctor is called and everything possible is done to save the animal, but she gradually sinks and dies and the owner wonders if that doctor "knew anything." That is just where we are standing to-day, wondering if the doctors know anything about parturient apoplexy.

Veterinary literature since the commencement of the century teems with descriptions and discussions relative to the disease and the most eminent veterinary pathologists still appear to be far from unanimous as to its nature. This statement made by Fleming a quarter of a century ago still holds good.

In this vaunted day of science new theories are advanced and new treatments invented to relieve the concomitant conditions of this as yet disputed lesion.

Dr. Schmidt, of Denmark, inaugurated the idea that the trouble originated in the udder and his treatment is to inject a solution of iodide of potassium into the udder through the teats. His paper giving theory, details, treatment, etc., was translated by Dr. Williams and published in the AMERICAN VETERINARY REVIEW, covering a space of forty pages. The treatment was very soon taken up by veterinarians throughout the United States. Good practitioners have had varied success with the Schmidt treatment, saving according to the figures they have given from 25 to 75 per cent. Dr. Schwarzkopf, who is most enthusiastic for the Schmidt treatment, collected data which he presented in a paper before the American Veterinary Association in New York last September, himself loses two cases out of eight and a third by complications.

The intravenous treatment is comparatively a new one. So far as we can learn the success with this mode is about equal to the Schmidt.

Instrument makers have not been slow in aiding the would-be-up-to-date practitioner, as they are already making and advertising instruments for the new treatments. If the Schmidt theory is correct some one should invent an antitoxin for the purpose of treating the liable subject before parturition and produce immunity from such attack.

At the request of this association, I collected data on this subject. The following list of questions was sent to the members of the profession in this State:

No. 1. Time of taking ill after delivery?

No. 2. What was the treatment?

No. 3. Recovery or death?

No. 4. In case of death, give post-mortem, if any.

No. 5. What is your theory as to the pathology?

I received eleven replies. The replies to question No. 1 varied from time during delivery up to ten days after. The replies to the remaining questions were as follows: Treatment—One used Schmidt, also hypodermic injection of strychnia; tapped the rumen; magnesia sulphate, as cathartic.

Two cases—One recovered that received strychnia. Theory on pathology, nervous intoxication.

Another—" Intravenous injection, hot packs, cauterization, added iodide of potassium treatment with the intravenous treatment; have saved 70 per cent.—none before. Pathology—Am inclined to Schmidt theory."

Another—"Iodide of potassium per mouth, laxatives and stimulants, no success with Schmidt's mode. Recovery, 50 per cent. Pathology—Inclined to believe that the trouble is what we call parturition centre in the lumbo-sacral region of such nature that the nerves posterior to this cease to act."

Another—"Intravenous injection, potassium iodide per mouth, stimulants, hot fomentations to loins. Recovery, 75 per cent. Pathology—Am undecided."

Another—"Intravenous injection, hot packs to body and cold to the head, eserine hypodermically, and later strychnia. Of late using the potassium iodide treatment (Schmidt's) in connection with the above and less of the hot and cold applications. Gives no per cent. on success and no theory on pathology."

Another—"Laxatives and stimulants—nux vomica and brandy, counter-irritation to spine. Died after twenty-eight hours' treatment." Pathology, no theory expressed.

Another—"Liferoot and pulsatilla every two hours. Recovery about 70 per cent. Pathology, no satisfactory theory."

Another—"Bloodroot and pulsatilla every two hours, followed by magnesia sulphate and aromatic stimulants. I had seven cases one very wet week last June, most of them delivered in pasture, and all died. Had ten other cases, made good recovery." Pathology, no theory expressed.

Another—"Sulphate magnesia in one gallon of water, ice on head, stimulating liniment to spine, after acute stage nerve tonics and stimulants. Five out of eight recovered. Schmidt's treatment in five cases; all made good recovery. Pathology—A superabundance of blood in the system immediately after calving, which has been nourishing the fœtus, is divided in these new channels for the production of milk, and the mammary glands at this time are generally stimulated to utmost capacity, and therefore this blood instead of being converted into milk is retained in the system, causing degeneration of the nerves and centres."

Another—"All that has been recommended. Schmidt's treatment with better success. Recovery, probably 60 per cent. Pathology—Believe it is due to impression on the brain and spinal cord due to ptomaine poisoning or bacteria; do not believe all the fault is in the udder."

Another—"Epsom salts, common salt, gamboge; three doses of pulsatilla and liferoot and no more. Recovery 50 to 75 per cent. Pathology—I think that there is a large amount of nutriment in the blood that should go to the calf, or milk that is thrown back upon the system, and the large amount of blood that don't find a natural outlet is thrown back on the system, influencing the sympathetic system, which causes the bad circulation of the brain."

In the eleven reports only two give post-mortem conditions. One states: "Brain soft, bloodless and flabby"; this animal must have died after a few days' illness and the lesions thus found were secondary.

Another states: "I have held many post-mortems and I have always found thrombosis and embolism in the pelvic, sacral and also in the mesenteric blood vessels. Congestion of the various organs, the result, I think, of vaso-motor troubles. In the posterior pelvic and sacral regions the various tissues seem bloodless, soft and flabby and in a very dry condition."

I wonder if the doctor really meant what he said, *i. e.*, that he found thrombosis and embolism in the pelvic, sacral and mesenteric blood vessels, or were they post-mortem clots? If he found thrombosis and embolism, then such conditions must have been preceded by disease of the heart or blood vessels. An embolism is the obstruction of a blood vessel by an embolus; an embolus is a clot formed in one place and transported by the blood to another locality; such emboli are ante-mortem conditions.

To recapitulate: Nine gave medicines per mouth; three the Schmidt treatment; one the intravenous treatment; two the intravenous and Schmidt; two, ice or cold applications to head.

Of the number who have given medicines per mouth, not one has stated how they were administered, whether by drench or through a tube. If the cow is in a comatose condition, medicines cannot be safely administered by a drench, as they are liable to pass down the trachea, causing asphyxia or choking. The animal that is repeatedly drenched and recovered, had but a slight lesion to overcome.

Franck gives a list of over 700 cases, with 60 per cent. recovery. This is in Europe, where the per cent. of recovery is very much reduced on account of the large number of animals that are slaughtered and used for food that in the United States would have the opportunity to recover.

Recently we see articles upon this subject headed "Parturient Paresis." This word paresis should not be used in connection with this lesion. We have only to consult lexicographers for the reason. *Universal Dictionary of the English Language;* Paresis, patho, insanity, with general paralysis. The loss of motor power is progressive. Those afflicted rarely live more than from one year to three years. *Webster:* Paresis, incomplete paralysis affecting motion but not sensation. *Duane:* Paresis, incomplete motor paralysis. *Dunglison:* Paresis, diminution of motor power; slight incomplete paralysis, affecting motion but not sensation, but by some regarded synonymous with paralysis.

Apoplexy is a sudden diminution or loss of consciousness, sensation and voluntary motion, usually caused by pressure on the brain. If this pressure is due to congestion or from other cause, when removed the animal recovers and is in no manner paralyzed. Then what is parturient apoplexy? There are already too many answers to this question. In a typical case, taken ill six hours after delivery, died ten hours later, without a struggle. I find on post-mortem meningeal congestion of the brain and spinal cord, hæmorrhage, a clot extending full width of the fourth ventricle with œdema or water. Can any one doubt that such conditions are sufficient cause for death?

The work of Friedberger and Fröhner, translated from the German and published in 1895, states that the pathological anatomy presents nothing, or almost nothing, characteristic.

These animals cannot die without a cause. The symptoms are constant. They are that of coma, and coma is a symptom of lesions of the brain. Then we must look in the brain for the lesions. These are the primary lesions.

According to the percentages given our losses are still too great. I would earnestly ask the profession to make post-mortem examinations on the animals we lose, that we may agree on the cause of death. Until then treatment of whatever mode is to a certain extent empirical.

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
of the McKillip Veterinary College, Chicago, Ill.

ABDOMINAL SURGERY.

Abdominal Operations (*Concluded from page 446*).

5. *Enterostomy.*—This is an operation by which an artificial opening is made into the intestine so as to communicate with the external surface of the abdomen. The indications for such procedures are either for the treatment of surgical diseases of the intestinal tract, or physiological experimentation. An artificial opening may be made into the alimentary tract to introduce food into the intestine and relieve part of it of its physiological function, or for the passage of fæcal matter when the posterior part of the intestine is obstructed. When food is introduced in this manner it should be artificially digested (*peptonized*). This would not be a practical procedure in herbivora, but in carnivora or omnivora this method of administering food may be used to a good advantage. The formation of an artificial anus is not followed with very favorable results in large domestic animals, but in small animals temporary relief is often obtained in this way. Physiological experiments are often made by forming an intestinal fistula for the study of digestion. The indication for enterostomy may be enumerated as follows, viz.:

(*a*) For temporary relief.
(*b*) For temporary drainage.
(*c*) For permanent drainage.
(*d*) For curative measure.
(*e*) To ward off impending death.

(*a*) *For Temporary Relief* in case of symptoms of intestinal occlusion or tumors, ulcers and other pathological growths, enterostomy is an operation that is open to discussion, and when the patient's condition can be ameliorated by preventing the irritation caused by the passage of aliment over the diseased and highly sensitive portion, it should be selected as the means of giving temporary relief which may be an initiatory step toward a curative measure.

(*b*) *For Temporary Drainage.*—In some instances it may be necessary to resort to enterostomy in order to establish drainage for a day or two in order to fix the intestine, following volvulus, to assist immediate union of accidental or surgical intestinal wounds, or in case of extreme distention following intestinal operations.

(*c*) *For Permanent Drainage.*—Obstructions that cannot be removed require permanent drainage by forming an artificial anus (*enterostomy*). If the obstruction is located in the anterior or middle portion of the intestinal tract, the loss of chyle causes emaciation which is soon followed by death from inanition. When the opening is made in the jejunum or ileum the emaciation is very rapid, and the danger of prolapse of the intestine through the artificial anus is increased, which makes it a procedure not practical in veterinary surgery, except when used for physiological experiments ; but, when the opening is in the great or floating colon the results are much more satisfactory.

(*d*) *For Curative Measures.*—In ulcerations of the rectum the condition may be aggravated by the passage of fæces over the hyperæsthetic area involved by the ulcer, and in such cases the condition can be improved by the formation of an artificial anus. In case of distention of the colon caused by the loss of tonicity of the walls, the accumulation of fæces often cannot be prevented by medication or administration of enemas, and in such instances the only remedy is to relieve the colon of its function by forming an artificial anus at the anterior portion and allowing it to regain its tonicity. Volvulus of the sigmoid flexion is sometimes successfully treated in this manner ; in case of a recto-vesical fistula, enterostomy is indicated, and the false anus in such instances should be made in the floating colon, in order not to deprive the system of any of the physiological functions of the alimentary tract.

(*e*) *To Ward off Impending Death.*—As a measure to ward off death, enterostomy is seldom adopted in veterinary practice, but it might in some cases be practical. The indication for such a procedure is generally cancer of the rectum or growths that cannot be removed. If the patient is near death from the disease or growth, and it is evident that the relief of the obstruction would prolong life for two or three weeks, and if any advantage can be gained by such an extension of life, the operation should be performed, otherwise it should never be undertaken.

Operation.—The patient should be cast, secured and anæsthetized, the site of the incision chosen, the hair clipped and surface shaved and rendered as near aseptic as possible ; the incision is made through the walls and a loop of the intestine is brought through the incision and a stiff sterilized rod passed under the loop through the mesentery. If temporary drainage is required, an incision is made into the loop and a tube inserted ; but for permanent drainage (*artificial anus*) the incision should not be made into the intestine for at least three or four days, when the adhesions of the intestine and the edges of the surgical wound made in the wall are complete. No sutures are required, and when the intestine is cut, it should be cut as near the posterior part of the loop as possible, which will atrophy and is soon out of sight ; the anterior portion of the loop should protrude beyond the external surface of the walls to prevent the fæces from running over the surrounding skin. The chief object in view is to prevent infection, and the wound should be dressed accordingly.

After-treatment.—If the dressings are properly and carefully applied from the beginning, the wound will unite by primary union ; the management of the wound depends chiefly upon the care taken to prevent infection. The best anus is the one that the mucous membrane is gripped by the parietal muscles ; it never dribbles, and yields only to intestinal contractions and is closed by the contraction of the oblique muscles.

6. *Enterorraphy.*—In enterorraphy we include all intestinal sutures, and it will be impossible to consider all of them in detail, or to select any one of the methods that can under all circumstances be considered the best, for under certain conditions one may be practical while under another it may be counter-indicated ; therefore the operator in each instance should select the method which he thinks will meet the requirements.

The needle used in making intestinal sutures should be round, with no cutting edge, and slightly curved at the point. The point should not be too sharp, so that in passing through the tissues it will not penetrate blood vessels, but push them aside instead. The needle should be inserted in such a manner so as to give it the best possible hold on the tissue. The intestinal sutures used generally have already been described (REV., XXIV., No. 3), and it will be unnecessary to recapitulate.

Suture Material.—The material employed in suturing must be carefully sterilized, and should be selected according to the function it is supposed to perform. Catgut, silk, linen and Chinese silk supply the best suture material required in enterorraphy. Catgut should be used when the stitches are to be absorbed and can be relieved by a secondary series. All other suture material may be used when the stitches are to be sloughed off and passed out with the contents of the intestine.

Sutures.—The suture employed in enterorraphy may be either continuous or interrupted. The continuous suture can be used in making stitches that are cast off into the intestine, and in this connection are favored by operators. The chief advantage in its use is the rapidity with which it can be applied. The chief objection to continuous sutures is that they only remain firm as long as all the stitches remain secure, but they can be employed to good advantage with a secondary row of stitches. The interrupted sutures have already been mentioned and described.

After-treatment.—Shock is the first condition that requires attention. Stimulants should be given per rectum, and continued if the operation involved the part of the intestinal tract anterior to the floating colon, but if the part involved is located in the floating colon stimulants may be administered per os; however, rectal feeding is always preferable, because the presence of stimulants or food may stimulate the action of the intestine and interfere with the wound. The first food should be such as can be absorbed by the stomach and should be given in very small quantities. Strychnia may be given hypodermically to prevent paralysis of the intestine. Morphia may be used in the first stage, but after the third day mild salines should be given in small doses, and the remainder of the treatment is the same as in other intestinal operations.

7. *Gastrectomy.*—There is but little known of the total extirpation of the stomach; even in human surgery the operation has not been performed often enough to observe all the detail of the after-treatment. The management of such cases must yet be carefully studied before the operation is a success, and it should be performed when the opportunity presents itself if it be for no other purpose than to lay out a course of after-care.

The management of the intestinal tract following gastrectomy is worth considering and the proper method of handling such cases can only be learned by experimenting in that line. The only case of gastrectomy that we have ever seen performed was undertaken by a human surgeon who was familiarizing himself with the technique of the operation by experimenting upon a dog for the purpose of using such interference upon a patient whom he suspected of having a cancer of the stomach, which might require a complete resection of the stomach. The dog died three weeks after the operation from an overdose of morphia given to relieve pain caused by indigestion, and his patient (a man) never rallied enough to withstand the operation.

Partial Gastrectomy or Pylorectomy, is more commonly indicated than gastrectomy, and has been successfully used in diseases of the pylorus, such as cicatricial stenosis, ulcer and cancer of the pylorus. According to statistics given by Winiwater and Gussenbauer the majority of cancers of the stomach are located in the pyloric portion and seldom extend into the duodenum, and the results of 70 pylorectomies on human subjects compiled by McArdle (*Dublin Journal of Medical Sc., June, 1887*) are as follows: 24 died from the operation; 14 from peritonitis and septic infection; and 32 recovered; some of which were reported well three or four years after the operation. Thus far no statistics of gastrectomy or pylorectomy have been gathered by veterinarians.

Operation.—The operation is more easily described than executed; the arrest of hæmorrhage is not an easy factor; and the isolation of part or entire organ requires careful manipulation. The procedure may be divided into the following steps, viz.:

(*a*) Celiotomy.
(*b*) Isolation of part or entire stomach.
(*c*) Resection of part or entire stomach.
(*d*) Anastomosis or approximation.

(*a*) *Celiotomy.*—The incision into the cavity is made along the linea alba and only large enough to explore the epigastric and hypochondriac regions, and when the condition is ascertained the incision may be made large enough to facilitate the operation required; when necessary an incision may be made at right angles to the first one which will give more room to manipulate the structures involved in the operation.

(*b*) *Isolation of Part or Entire Stomach.*—This part of the operation is the most difficult, and before attempting to use the knife it is well to ligate the large arteries, viz.: the gastric branch of the cœliac axis; the left gastro-epiploric as near the splenic artery as possible; and the right epiploric as near the hepatic as possible. The large arterial branches found in the omenta should also be ligated. The gastro-phrenic and the gastro-hepatic omenta should be severed first and all hæmorrhage arrested; and the gastro-splenic and the gastro-colic (*great omentum*) next. When the stomach is disengaged it can be resected, but when only a part of it is to be resected, only the part of the omentum or omenta should be severed from the stomach that is diseased or involved in the structure to be removed.

(*c*) *Resection of Part or Entire Stomach.*—If part of the pyloric portion is to be removed, the walls of the stomach are divided and all hæmorrhage is arrested, the direction of the incision and the amount of the organ resected will depend upon the extent of the disease; and in every case the operator must adopt means of preventing the fluids of the stomach from escaping into the cavity, which is more difficult to accomplish than when the entire stomach is removed. When the resection is complete the ends are united by the simplest substantial method that can be employed to meet the requirements of the case. If

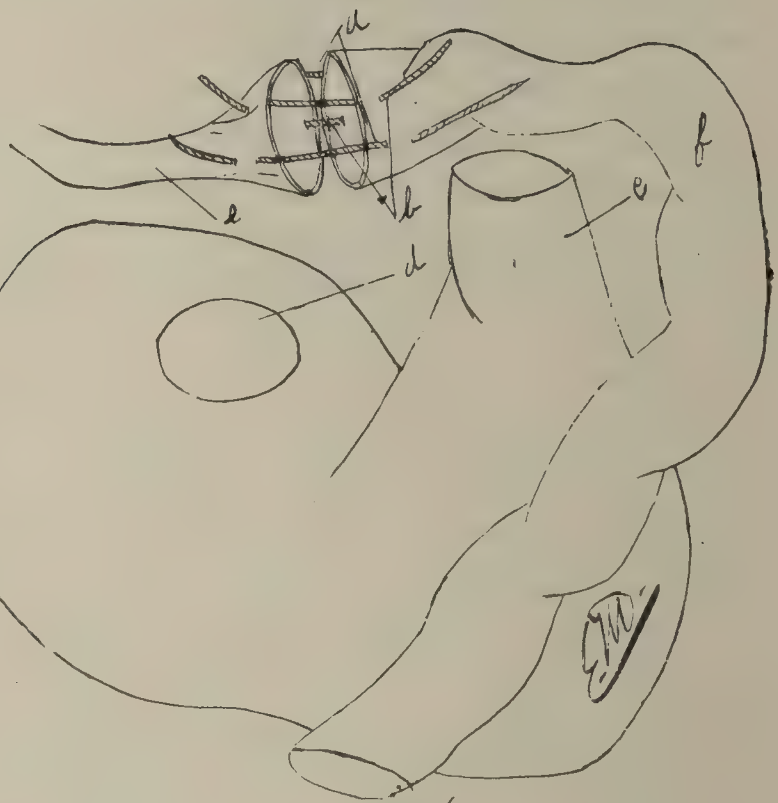


Fig 16

GASTRECTOMY.

A. Lembert's stitch; *b*, Czerny's stitch; *c*, pylorus; *d*, cardiac portion of the stomach; *e*, œsophagus; *f*, duodenum.

the entire stomach is resected, the œsophagus is united to the pyloric portion of the duodenum (Fig. 16), but before it is resected the contents of the duodenum is worked back, and a clamp or temporary ligature applied; the ends of the stomach can be ligated to prevent the escape of its contents into the cavity; when these clamps and ligatures are applied, the stomach is resected and the cavity well irrigated and all hæmorrhage arrested before any attempt is made to continue the work.

(*d*) *Anastomosis or Approximation* (Fig. 16).—When the preceding steps are completed, the ends are united; and in doing so the operator must resort to such methods which, in his judgment, will give the best results. In case of the entire stomach being removed, the ends are united as in intestinal approximation; if only the pylorus is resected, the pyloric portion of the stomach is united to the duodenum, and in such cases the intestine may be anastomosed with the stomach, as mentioned in the article on gastro-intestinal anastomosis (XXIV, No. 5.)

After-treatment.—For the first four or five days no food should be given by the mouth, but the patient should be fed on nutrient enemata. It is advisable not to give food that will stimulate gastric peristalsis, for such an action will disturb the wound. If the entire stomach is resected, food requiring gastric digestion should be given in small quantities at first, and increased gradually; but, if only a part of it is removed, food may be given per os much earlier than if a large portion or all of it is removed; in all cases, however, the first food should be peptonized. The patient must be kept quiet for a period of eight or ten days, and allowed only moderate exercise thereafter for at least a month or six weeks.

8. *Gastrotomy.*—In human surgery this is considered an old operation, which was performed as early as the 17th century for the purpose of removing foreign bodies from the stomach. In veterinary surgery the operation has been successfully performed on small domestic animals and ruminants. The indications for the operation are the presence of foreign bodies in the stomach, and growths on its internal surface. Foreign bodies that enter the stomach can generally pass through the pylorus; but long and heavy objects are often lodged in the fundus and cannot be removed without an operation. Small objects of a high specific gravity frequently collect in the stomach and interfere with gastric digestion; and, in such instances, the only remedy is to operate. Tumors and ulcers located in the mucous

membrane of the stomach, can also be successfully treated in this manner.

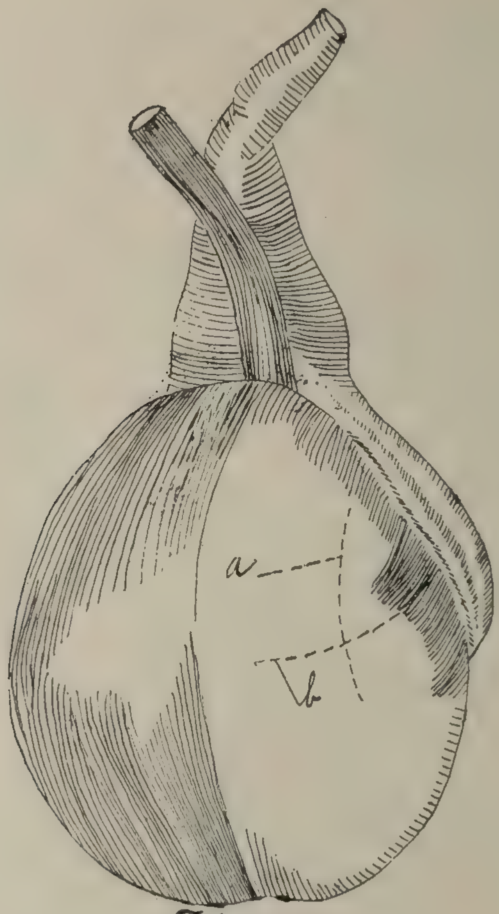
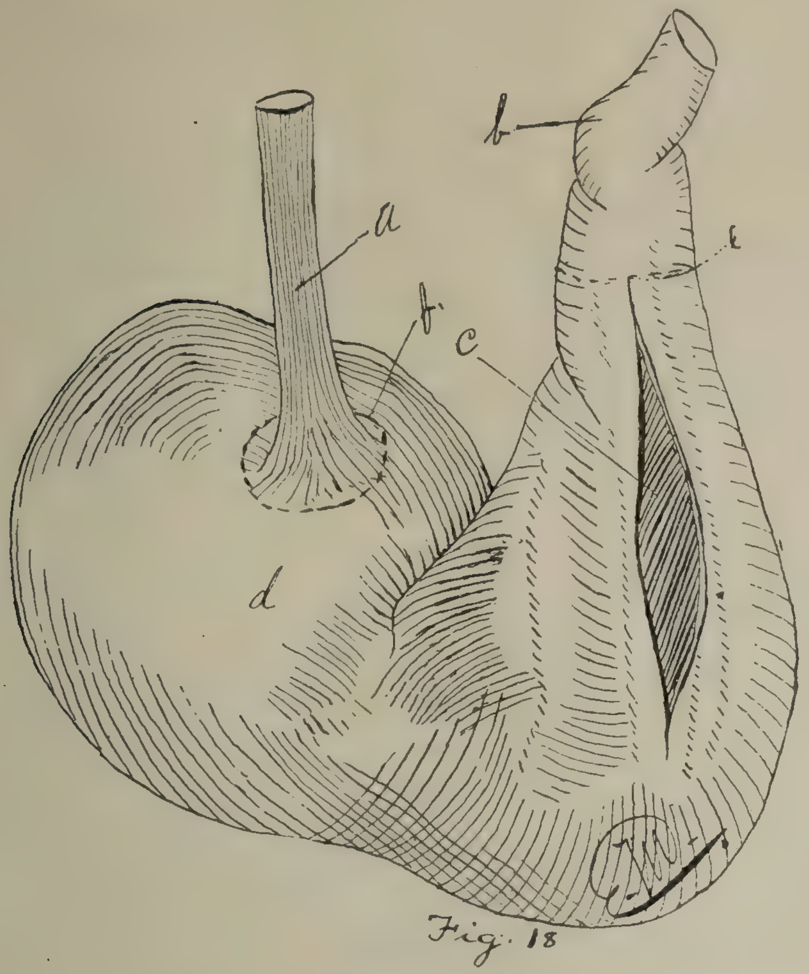


Fig. 17

GASTROTOMY.

A, Vertical incision; *b*, transverse incision in line with blood vessels.

Operation.—The patient must be cast, secured and anæsthetized; the abdomen is opened as in celiotomy; the incision made along the linea alba, and a secondary one may be made at right angle to the first. The incision in the stomach may be made in the pyloric or cardiac portion, and in some cases it may be made in the posterior wall, but in every case the incision should be made parallel to the large blood vessels. A small incision should be made and the stomach explored with the finger, to ascertain the condition, then it should be enlarged just enough to enable the operator to accomplish his purpose. Sometimes the foreign objects are embedded in granulations which bleed extensively when the object is removed; but, before closing the incision, such hæmorrhage must be arrested. When purulent or bloody material is found in the stomach, it must be removed; this can be done by a sponge held in a pair of forceps or sponge-holder. Cancers and ulcers can be curetted, and if confined to the mucous membrane only, the result of such treatment is generally beneficial (*Annals of Surgery*, *Dec.*, *1887*). Cancers



GASTROTOMY.

A, Œsophagus; *b*, pylorus; *c*, incision; *d*, posterior surface of stomach.

of the stomach are generally located in the pyloric portion, and at first are confined to the mucous membrane, but soon invade the sub-mucous coat, and finally attack the muscular and serous coats; when they invade the muscular and the sub-serous coats, they should be excised instead of curetted, and in doing so, care must be taken not to cause a perforation.

After treatment.—The things to be considered in the after-care are the comfort of the patient; shock; pyrexia; thirst; food; tympanites; peritonitis, and renal secretions. Each of these may tax the surgeon to the utmost, and he should handle them judiciously, for the result of such operations depend to a great extent upon the management of the case after the operation.

8. *Rumenotomy.*—This is an operation that has been performed with very good success upon the ox and sheep. Many of the unfavorable results of the operation are due to procrastination; either the client is unwilling to submit the animal to the operation, or the veterinarian is reluctant about attempting it, and as a matter of fact, in many cases, the patient is beyond

recovery when such treatment is adopted. The indications for the operation may be any one of the following conditions, viz.:

(*a*) Acute tympanites.
(*b*) Chronic tympanites.
(*c*) Overloading of the rumen.
(*d*) Foreign bodies in the rumen.

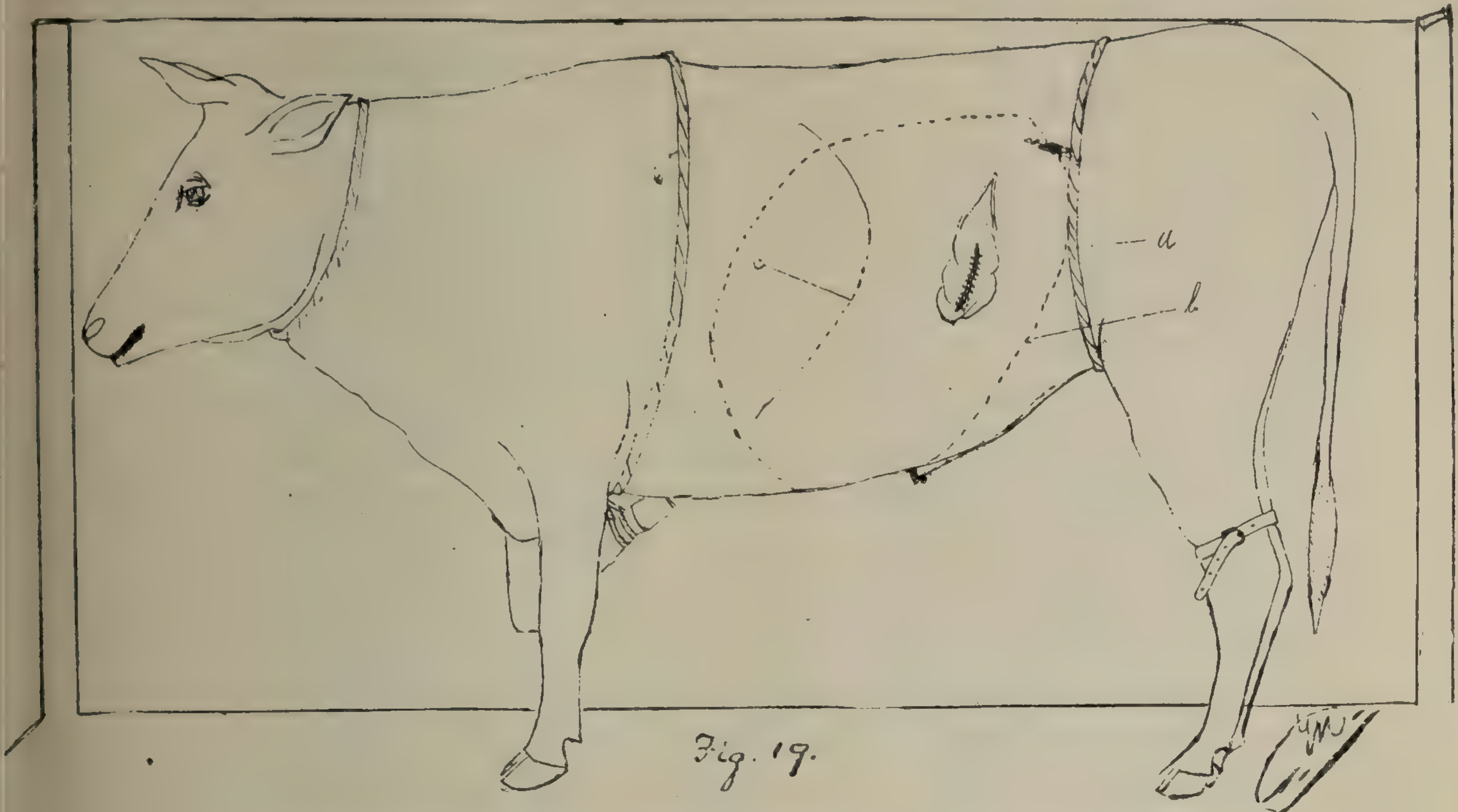
(*a*) *Acute Tympanites* caused by fermentation of the contents of the rumen, such as green fodder, green hay or clover, plants, leaves, potato stems, cabbage leaves and turnip leaves covered with dew or frost when eaten; besides, the condition may arise from eating apples, potatoes, turnips, or radishes. The fermentation of the vegetable contents of the rumen will generate gas, and when it cannot be arrested tapping will give temporary relief; but in such cases, the only radical method is to evacuate the rumen by the operation in question.

(*b*) *Chronic Tympanitis* that is caused by the accumulation of indigestible matter in the rumen which interferes with the function of the organ, can be relieved by the operation; but the periodic tympanitis which often accompanies chronic catarrh of the rumen cannot be cured by such surgical interference.

(*c*) *Overloading of the Rumen.*—Animals that have been fed upon one kind of food, which accidentally get access to another kind will often overload their stomachs to such an extent that digestion is impossible; the repeated attempts of the organism to perform its function is followed by the exhaustion of nerve force and the functional activity of the rumen is arrested; in such instances the function of the rumen cannot be restored by stimulants, or medication of any kind, and the only resort is to evacuate it by surgical means. If the contents is not removed, inflammation of the rumen may follow, but in some cases the patient may die of apoplexy or asphyxia.

(*d*) *Foreign Bodies in the Rumen.*—The rumen is often the receptacle of foreign bodies taken in preference to food by animals afflicted with an aberration of appetite (*pica*) common to ruminants; blankets, articles of clothing, hair, dirt and other indigestible substances are found in the rumen, and when the presence of these objects interferes with digestion the condition of the patient can only be improved by the removal of the substances that are the exciting cause of this functional disturbance, which in many cases can only be done by rumenotomy.

Operation.—The first step to be taken is the selection of a suitable place to operate; the next is to secure the patient properly. The operation is generally performed in a standing posi-



METHOD OF SECURING PATIENT FOR RUMENOTOMY.

A, rumen ; *b*, location of rumen ; *c*, costal border.

tion, and the patient should be so secured that it cannot lie down or injure the operator. In many instances, the surgeon can improvise some simple means of restraint, but the most convenient one is to place the patient in a stall or against a strong partition Four or six holes are made in the partition on the right side of the animal, two on a vertical line as far back as the hips of the patient, and two on a vertical line with the withers, and if the other two are needed they are made on a vertical line as far forwards as the pole. The surgeons casting ropes may be used to secure the patient (Fig. 19) ; a knot is made at one end and the rope is passed through the first hole over the back, around and under the abdomen through the second hole ; the rope is then drawn tight and taken diagonally across to the third hole and over the withers, around and under the thorax just behind the fore legs and through the fourth hole, when it is drawn tight and fastened securely ; if no other means of fastening the head is improvised the rope may be passed through the fifth and sixth hole. When this is completed the hind legs should be strapped together and one fore leg raised, leaving the weight of the animal on two hind legs and one fore leg. This method of securing will prevent the patient from lying down or injuring the operator. The hair must be clipped and the site of the incision washed with soap, hot water and antiseptics. The incision is made a little anterior and below the left external angle of the ilium and obliquely downward and forward in the direction of the muscular fibres. This method of making the incision has its advantages and disadvantages; if the edges of the wound can be held together by the sutures they will unite quicker and leave a smaller cicatrix than when the incision is made across the fibres; the disadvantages are that the edges of the wound will "gap," the strain upon the stitches is greater than when the incision is made vertically, consequently the operator should use his own judgment in choosing the direction of the incision. If the incision is made vertically the edges of the wound will naturally draw together and as a result of this fact the strain on the stitches is lessened, but the wound will not heal as readily as when the incision is made in the direction of the muscular fibres. The incision should be made in the left abdominal wall at the point mentioned above; the direction of the incision should be chosen

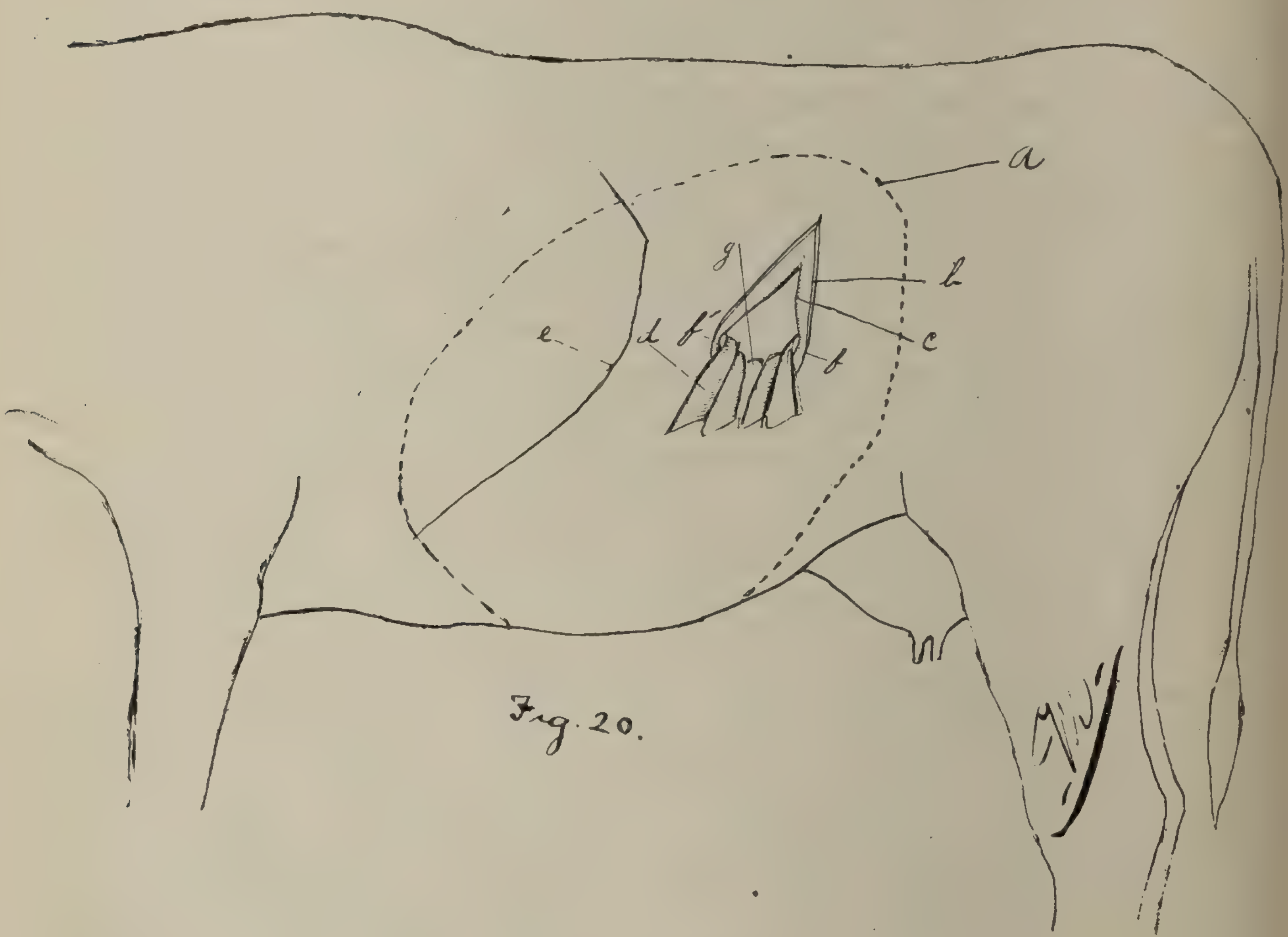


Fig. 20.

RUMENOTOMY.

A, outline of distended rumen ; *b*, abdominal wall incised ; *c*, rumen ; *d*, towel or cloth ; *e*, line showing posterior border of ribs ; *f*, and *f'*, points where the rumen may be sutured to abdominal walls (ad lib.) ; inferior angle of incision.

by the operator, for in some instances the advantages gained by making it in one direction will more than counterbalance the disadvantages of the other; the incision should be from fifteen to eighteen centimeters in length; the skin and the muscles should be incised to the peritoneum, and then a small opening made into it at the superior part of the incision and incised with a probe-pointed bistoury or with the assistance of two fingers and a scalpel. If the rumen is so distended that it cannot be drawn through the incision, the gas should be allowed to escape by puncturing or making a small incision into it; a towel must be used to prevent the contents which may escape with the gas from entering the abdominal cavity. The incision into the rumen is made in the direction of the abdominal incision, and when the rumen is opened, a clean aseptic towel or cloth is inserted into the opening (Fig. 20) to prevent the contents of the rumen from entering the abdominal cavity; the towel may be stitched to the edges of the incision (Fig. 20, *f*, *f′* and *g*.) but with the assistance of an attendant this procedure can be omitted. When the contents of the rumen has been removed the incision of the rumen is sutured as in gastrorraphy and the abdominal opening as mentioned in celiotomy.

After-treatment.—Food stimulating the functional activity of the rumen must be withheld; small quantities of water with the "chill taken off" may be given at short intervals; stimulants may be added to the water. Möller refers to the administration of stimulants into the rumen before closing the incision, when there is danger of shock producing unconsciousness. After the third or fourth day easily digested food should be given in small quantities, and increased gradually. The vitality of the patient must be maintained by the administration of stimulants during the first two or three days after the operation. If the wound in the rumen was made with aseptic precautions it will require no attention; the lower part of the incision into the abdominal walls should be sutured so as to establish good drainage, and if no symptoms of sepsis are perceptible, it should not be redressed before the sixth or seventh day. In every case the patient must be kept quiet and away from other animals and flies; the comfort of the animal adds much to the probabilities of a good recovery.

Ovariotomy. Ovarectomy or Oöphorectomy (total ablation of the ovaries) of domestic animals deserves more than casual notice in a detailed discussion of abdominal surgery, because it is the most frequent if not the most important abdominal operation in veterinary surgery. It is performed upon all domestic animals, large and small, old and young, and as the live stock industry of the country increases it is prone to become more and more a special and important part of the veterinarian's duties. Where once the non-professional spayer was the only one to perform these operations the educated veterinarian with his increased knowledge is being called upon to perform them. The latter with his accurate knowledge of surgical anatomy and pathology needs only to borrow the surgical technique and dexterity of the former to finally monopolize this entire domain, and until we have done so we are ill prepared to criticise the methods of even the most uneducated spayer. His superior dexterity will easily overbalance our superior knowledge of surgery because of the striking resistance most of the domestic animals offer to septic processes. Add, however, the dexterity of the former with the knowledge of the latter and the diminution in serious sequelæ at once becomes apparent.

Besides adhering strictly to the general rules by which all surgical operations should be performed the spayer *must* follow particular means of restraint, particular surgical positions for the patient, special locations for the incision, special means of exploration and finally special methods of resection, all of which vary according to the genus upon which the operation is performed. We will therefore discuss the subject in three chapters—viz. :

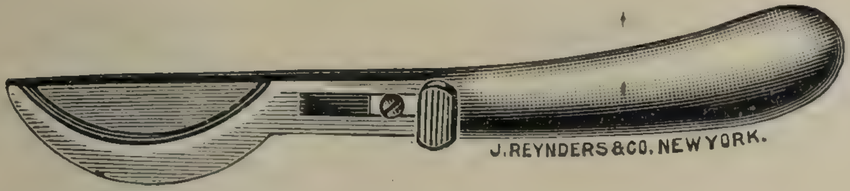
(1) Ovariotomy of Equidæ.
(2) Ovariotomy of Bovidæ.
(3) Ovariotomy of Carnivora and Omnivora.

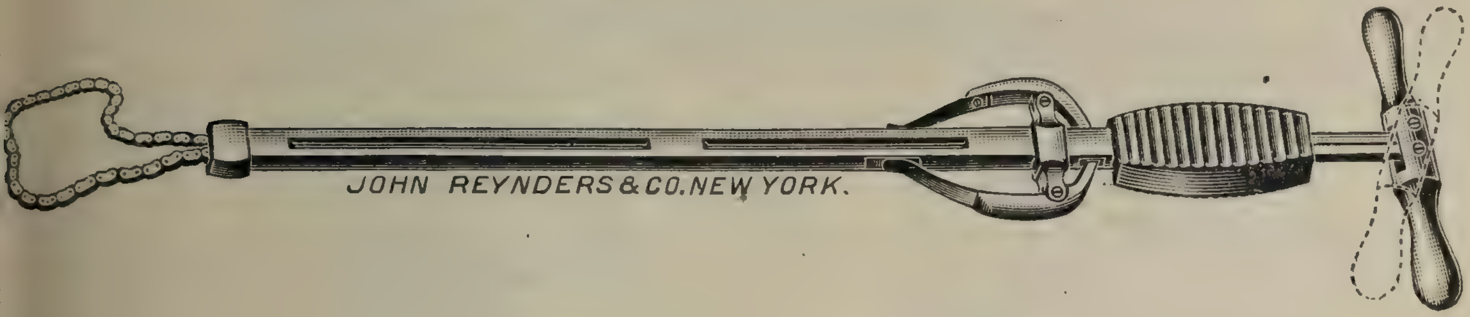
OVARIOTOMY OF EQUIDÆ.

Aside from a number of rare pathological conditions the only indication for the operation in mares is so-called nymphomania, a condition manifested by vicious switching of the tail simultaneously with micturation of small amounts of slimy urine. Such animals always have "bad tempers," which they are prone to display on the least provocation by kicking, biting or striking, and when bred they usually prove sterile.

Operation.—[Through the courtesy of Dr. W. L. Williams, Professor of Veterinary Surgery and Obstetrics at the New York State Veterinary College, we are able to give the readers of the REVIEW the following detailed description of the method adopted at his clinic] :

Instruments.—Colin's scalpel, ecraseur 55 cm. long.





Technique.—Operate on the standing animal. Stocks are *par excellence* the proper means of restraint and are essential to the best results. In absence of stocks other means of restraint may be improvised. Secure the head elevated, prevent arching of the back or rearing, by a rope over the back, prevent lying down by two straps beneath the body, and movements backward or forward by ropes or straps behind and before the animal; pinion all four feet and secure the tail tightly stretched upward to a beam.

With soap, water and brush cleanse the tail, perineum and vulva thoroughly, being especially careful to remove all detachable masses of sebum, 50 per cent. alcohol may be used sparingly to aid in removing the sebum. Too free a use of alcohol excoriates the delicate skin. Cleanse the clitoris carefully. Follow the washing with a free application of 1 : 1000 aqueous sublimate solution to the external parts and for a short distance (½cm.) inside the vulvar lips and to the clitoris. Do not introduce disinfectants into the healthy vagina nor deeply into the vulva as it will cause severe straining during and subsequent to the operation and by injuring the vulvo-vaginal mucosa favor subsequent infection of the vaginal wound. Wash away the sublimate solution with a tepid sterile .6 per cent. soda bicarbonate solution, and fill the vulvo-vaginal canal with the same. After thorough disinfection of the hands and arms remove the disinfectants by washing in sterile soda solution, which at the same time renders the hand unctuous and readily introduced through the vulva. Armed with the sterilized scalpel introduce the right hand into the vagina promptly and when the vagina is well "ballooned" unsheath the knife and placing it just above the os uteri (*I* Fig. 25) parallel to the long axis of the uterus and a few mm. to the right or left of

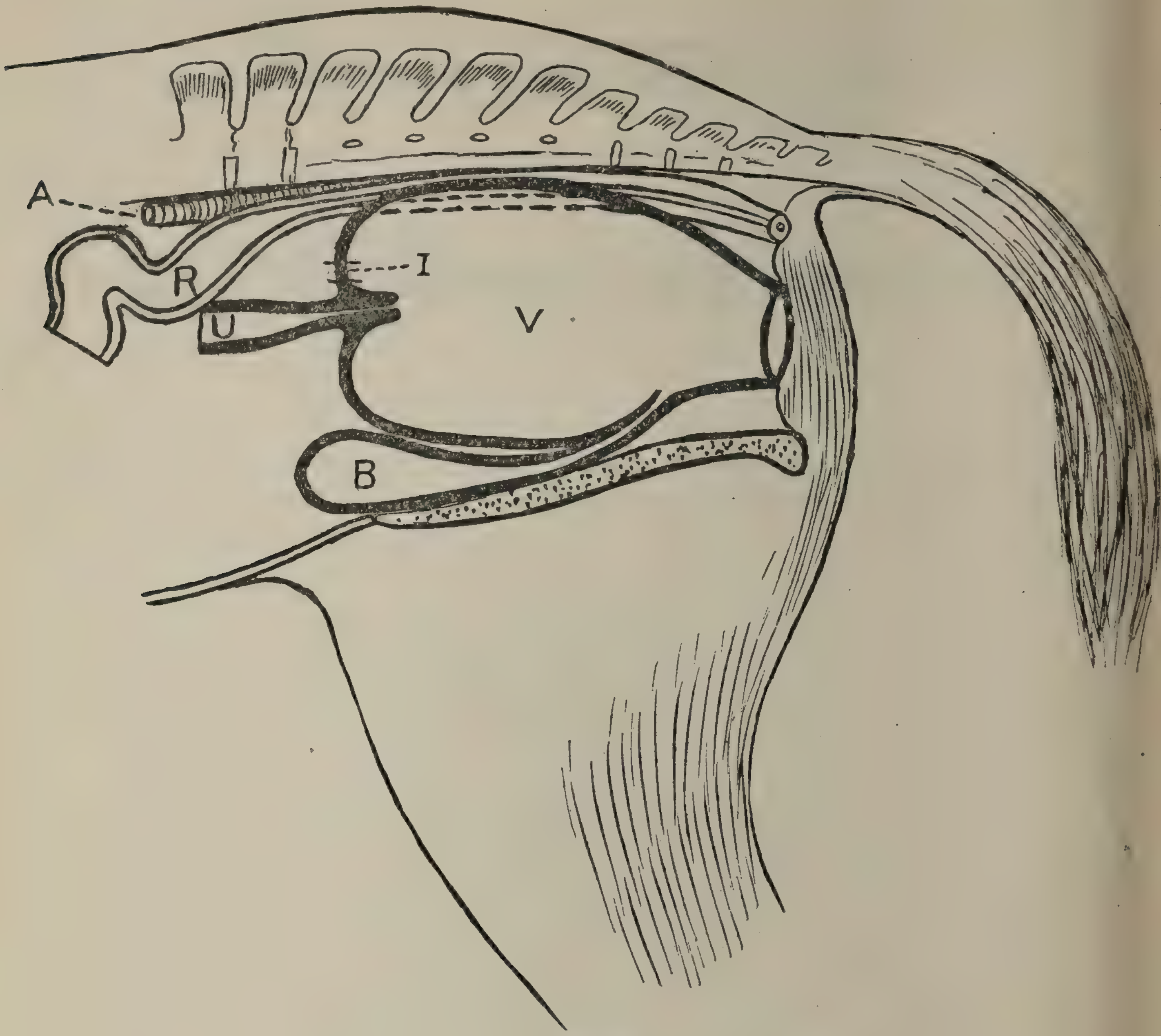


FIG. 25.

VAGINAL OVARIECTOMY.

Diagrammatic sagittal section through dilated vagina of mare. *A*, Aorta; *R*, rectum; *U*, uterus; *V*, vagina; *I*, vaginal incision.

the median line, the blade being held vertical, that is, the cutting surface parallel to the longitudinal muscular fibres of the vagina, and guarding the possible extent of its introduction with the thumb and fingers, push it directly forward in a straight line with a quick thrust through vaginal mucosa, the muscular walls and the peritoneum until the disappearance of resistance indicates that the peritoneum has been penetrated. This is the most critical step in the operation. The vagina of the mare possesses the property of dilating in a remarkable manner like a balloon filled with air, occupying at such times practically the entire pelvic cavity, the rectum collapsed, and the roof of the vagina stretched firmly against the sacrum and in

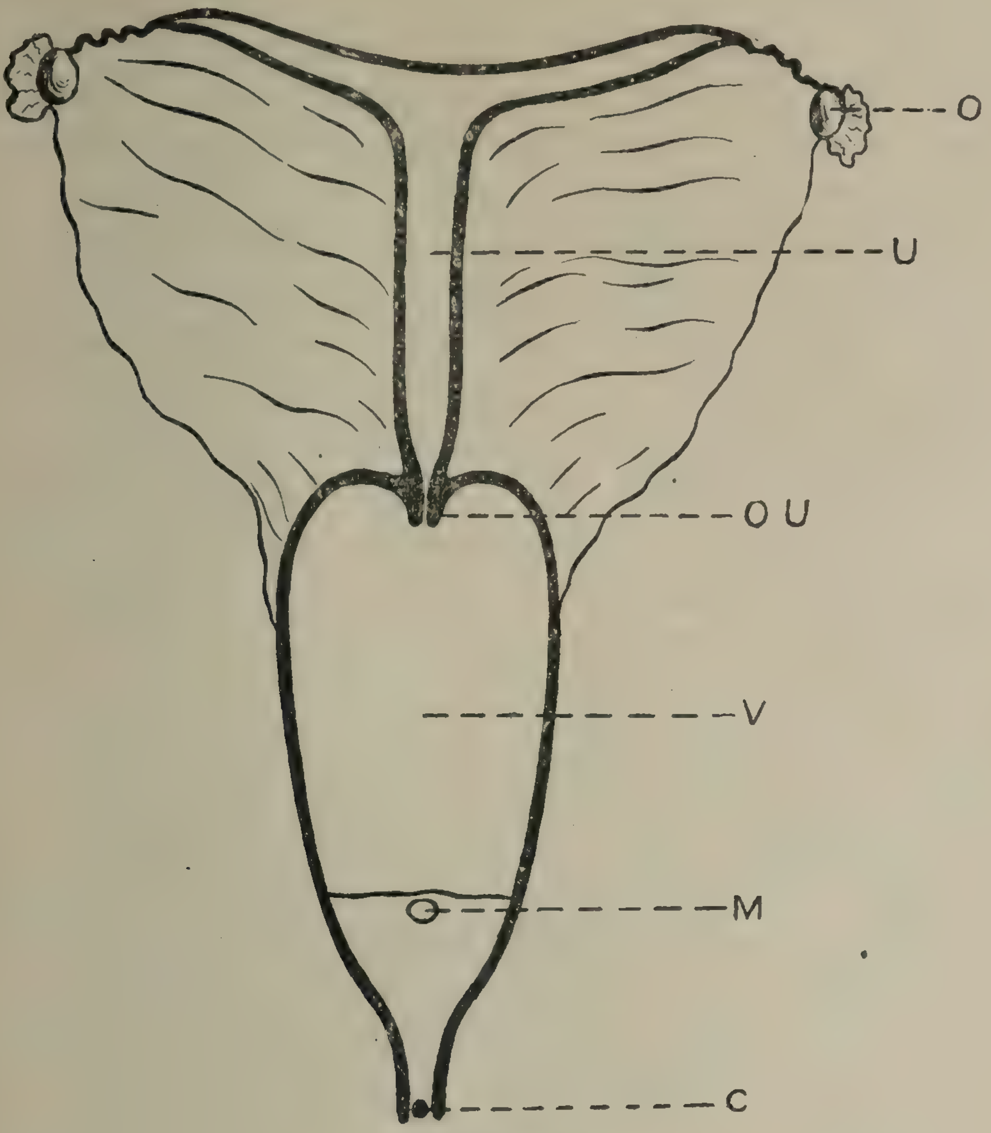


FIG. 26.

VAGINAL OVARIECTOMY.

Diagrammatic horizontal section of uterus and dilated vagina. *C*, clitoris; *M*, urinary meatus; *V*, vagina; *OU*, os uteri; *U*, uterus; *O*, ovary.

immediate contact with the great pelvic vessels (*A* Fig. 25), while at the sides and below the vaginal walls are generally in immediate contact with the bony walls of the pelvis. The roof of the vagina, when at rest, is in contact with the floor of the rectum and attached thereto by connective tissue until within 6 to 8 cm. of the os uteri, where the two organs are separated by a peritoneal duplicature which constitutes the operative area. This operative area, parallel to the rectum when the vagina is at rest becomes perpendicular to it when "ballooned," so that the operator needs to make his incision directly forward through a tense, thin, perpendicular wall like a drumhead. There is in this state no operative area above whatever and an upward incision wounds the rectum and perhaps the posterior aorta or one of the iliac arteries.

If the hand is introduced immediately after the injection of the sterile saline solution the vagina will generally be found "ballooned," or will quickly become inflated under movements of the hand. If the solution is thrown out the vagina may collapse and closely invest the hand, in which case more soda solution should be injected, when it will again dilate. If the hand is introduced without the knife, withdrawn and then introduced with the knife it will be frequently found that the vagina has collapsed and needs a second filling with the fluid. Patience until dilation is accomplished and promptness to act when attained are prime requisites to success. The knife should be pushed through the vagina quickly, making a clean wound the width of the knife-blade, when the latter is to be withdrawn and laid aside. It should be remembered that in this "ballooned" state the anterior wall of the vagina is but 2 to 3 mm. thick and easily penetrated, the completion of the wound being indicated by the sudden disappearance of resistance. Introduce the hand again, insert one finger in the incision, then a second finger, and holding the fingers in the form of a cone, push the entire hand into the peritoneal cavity. Immediately below the incision and continuous with the tissues involved in the wound lies the uterus with a transverse diameter of 4 to 6 cm. With the palmar surface of the hand downwards, trace the uterus forward a distance of 15 to 18 cm., where it ends abruptly in two cornua of about the same size as the uterus, which are given off horizontally at almost right angles. Trace these to right and left for a distance of 14 or 15 cm., where they end obtusely, and 3 or 4 cm. beyond this in a direct line, resting upon the anterior border of the broad ligament is the dense oval ovary varying in size from 2.5 to 7 cm. in diameter. Withdrawing the hand, carry the ecraseur enclosed within the hand through the vaginal wound to the region of the ovary, release the ecraseur and retrace the parts if necessary, and locating the ovary, drop the chain over the ovary from above and either grasp the ovary with the fingers through the chain loop from above and draw it into the loop or, passing one or two fingers around beneath the ovary, push it up through the loop to be grasped by the thumb and index finger above. The chain loop should be of barely sufficient size to admit of the easy passage of the ovary. Holding the ovary with the one hand tighten the chain quickly with the other, examine to make sure that a loop of intestine is not caught, draw the ovary well through and get a large portion of the oviduct, and cut off promptly, holding to the ovary until carried out through the vulva. Remove the other ovary in the same way. Generally it is most convenient to remove the left ovary with right hand, and *vice versa*, but both may be removed with either hand. Wash away any blood from external parts, apply sublimate solution freely to vulva, perineum and tail. Keep the patient quiet for five or six days, and feed lightly on laxative diet. If infection occur mop out the vagina with antiseptics. If abscesses form, open them promptly into the vagina or rectum by thrusting an index finger through their walls. If the infection causes difficult defecation by pressure on the rectum or swelling of its coats through inflammatory implication, keep the fæces pultaceous by means of enemas.

(*To be continued.*)

SURGICAL ITEMS.

It is of course much easier to obtain asepsis in a well regulated operation room than in a private stable, yet there is no doubt that much can be done in that direction even in the latter under all conditions ordinarily encountered. The preparation for an operation in a stable, while frequently a difficult matter, should never be entirely overlooked, and the veterinarian should go prepared to meet the emergencies which may arise in this connection at all times. There can be no excuse so far as clean instruments, clean dressing and the necessary chemical disinfectants are concerned, and it is usually possible to find a suitable place for securing the patient. A real obstacle, however, that is met both in city and country practice is the difficulty of securing pure water for the antiseptic solution and clean containers to hold them. The veterinarian is usually offered ordinary stable pails or a dirty wash pan filled with water of doubtful purity, and it is usually impossible to impress a stableman with the importance of having these items immaculate in the surgical sense of the word. It is therefore evident that the surgeon who operates away from his own equipped room should provide himself with implements which will in a measure overcome this obstacle. A common zinc or porcelain coffee pot with a capacity of about two litres will be found a very useful article to have continually in one's vehicle ready for use. Solution in such a vessel can be kept clean and can be poured upon a surface to good advantage and without waste. A flat zinc or porcelain pan is also useful, but has the disadvantage of being more difficult to keep perfectly clean than the inside of a covered pot. In choosing the liquid with which to make an antiseptic solution it would of course be preferable to demand boiled or sterilized water, but it is needless to state that such can seldom be readily obtained, in view of which fact we must be content with water from other sources. Tap water of cities is *always* dangerous and well water (except possibly of deep, drilled wells) is no better. Spring water as it comes from the earth or well water from a drilled well that is used continually may be reasonably supposed to be free from bacteria. While it is of course not always convenient to secure just what is wanted we should always use doubtful water with a full knowledge of the dangers that may emanate from them. Avoid, when possible, any form of surface water, pool water, ordinary well water, city tap water, creek or river water, and above all things avoid using water in stable pails.—(*L. A. M.*)

A new method of performing tracheotomy that is proving very successful consists of inserting a flattened tube between the rings instead of cutting them. The marked and immediate relief obtained and the simplicity of the operation of tracheotomy makes it very enticing to the young practitioner, who seldom fails to resort to it on the least provocation ; but the old experienced surgeon has learned to regard tracheotomy as really a dangerous procedure, and operates reluctantly and as seldom as possible, because many animals so treated are rendered useless from tracheal stenosis. The new method is believed to obviate this sequel. Veterinarians should try it and observe the results.—(*L. A. M.*)

This department neither recommends nor condemns the various neurectomies for the cure of spavin lameness that are receiving so much attention at present in current veterinary literature, but in the face of the very complex distribution of the nerves of the pelvic limb we are unable to comprehend how a neurectomy of the peroneal or posterior tibial (sciatic) nerves, or of both, just above the articulation, can prove effective, and certainly, at this writing, the results would indicate that the real neurectomy for spavin is not yet among "the powers that be."—(*L. A. M.*)

To obtain the best results from low plantar, or in fact any neurectomy, the patient should be allowed a protracted rest after the operation. A month's run at grass or in a loose paddock, as circumstances permit, will always pay both the client and surgeon for the extra time and expense. Such a course gives the unnerved parts time to accommodate themselves to the new condition, favors healing of the disease for which the operation was performed, and last, but not least, permits every iota of hyperasthesia to leave the surgical wound.—(*L. A. M.*)

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By Adolph Eichhorn, D.V.S., New York City.

The Changes in the Dog in Rabies, and the Pathologic-Anatomical Diagnosis of this Disease [*By G. Hébrant*].—The diagnosis of rabies on dead animals has always been known to be difficult, as the disease does not leave specific changes which could be detected by the naked eye. The histological examinations of the central nervous organs were also without positive results. On the other hand, last year, Nelis published a work in which he communicates that the peripheric, cerebro-spinal and sympathetic ganglions always show marked changes, produced by the virus of rabies. *These consist of atrophy, immigration of new cells into the nerve cells, and destruction of the same.* This work of Nelis received a prize from the Belgian Royal Academy of Medicine. The author examined the results of Nelis, and confirms the same. The principal change shows the plexiform ganglion (*Plexus gangliformis de Willis et de Vicusseus*); the same is in the dog spiral shaped, and in large dogs, it may reach the length of 1 cm. It lies on the vagus, shortly after its exit from the jugular foramen, and touches the superior cervical ganglion; this lies on the sympatheticus, is reddish and oval shaped. To find the ganglion is quite easy. After the removal of the skin and muscles, which cover the lateral face of the larynx, we meet superiorly to this the common branch of the vagus and sympatheticus, which is to be followed upwards until reaching the wing of the atlas. Here it bifurcates; the stronger branch is the ganglion plexiform, while the finer guides the superior cervical ganglion. For histological examinations, the questionable ganglion is to be put for 12 hours into absolute alcohol, then for one hour in xylol or chloroform, following this by the paraffin imbedding. The sections are dyed after Niss' method. —(*Annales de Med. Vet.*)

TWO CASES OF GENERALIZED TUBERCULOSIS IN HORSES [*By Knipsher*].—As it is important to publish all the cases of tuberculosis in horses, the author publishes the following made in his artillery regiment observations: Both cases showed almost the same symptoms; but a diagnosis was only made on the second horse on the grounds of the autopsy of the first case. Both horses had good appetites, almost until death, at the same time becoming more and more emaciated and losing strength. There was hardly a change in the pulse, respiration and temperature; discharge from the nose and cough were absent, also all the changes on percussion and auscultation. All that was striking was the continual loss of flesh, without any explainable reason; the very pale conjunctiva, and at the end the swelling of the hind extremities, and the beginning of polydipsia and polyuria. Examination of the urine showed only a slight quantity of albumen; sugar; kidney epithelia, etc., were not present. On post-mortem of the first horse, it was found that almost all of the organs contained different sized tubercular nodules, the most affected proved to be the greatly hypertrophied lung and bronchial lymphatic glands. The second horse was affected in a milder way, as the intestines, liver and kidneys were normal; on the lungs and mesentery could only be noticed small herds of tubercular nodules. On the spleen there was found a tubercular new formation of the size of a hazel nut, and on the diaphragm, one of the size of a pigeon's egg. All over, however, especially in the bronchial secretions, were found numerous bacilli of Koch. From these conditions it can be easily noticed. As to the few symptoms we can observe in a case of generalized tuberculosis in a horse, *intra vitam*, as even the strongly affected lung will not give any disclosure, so as in the absence of a nasal discharge the diagnosis is very difficult or impossible. A rather more supporting point is the increased thirst and polyuria near the termination of the disease, and both these symptoms, as has been observed, seem to occur in almost every case of which the motive is not explained yet. Nocard observed polyuria lately in eleven cases of abdominal tuberculosis in horses.—(*Deutche Thierart. Wochenshrift.*)

CONTRIBUTION TO THE STUDY AND PATHOLOGY OF PARTURIENT APOPLEXY [*By Dr. H. Van de Velde*].—The study of parturient apoplexy by the author, brought out a new theory with the conclusions that the disease is caused by different micro-organisms, either single or mixed (streptococci, staphylococci, bacterium coli), of which the characteristics are similar to those in men. The author distinguishes in parturient apoplexy a simple infection, caused by one of the mentioned micro-organisms, in their highest virulency, and mixed infections, which are caused by the colonization of several of these organisms. The seat of the infection causing this disease is in the uterus, and the disease itself is an intoxication, due to the poisonous products of the micro-organisms, which under suitable conditions may reach the blood. As results of the methods of the author's investigations, he came to the conclusion that amongst the streptococci causing parturient apoplexy are at least two varieties, of which the characteristic differences are in their form and culture, and the mode of differentation lies in their property of agglutination of the particular antistreptococci forms. He proved that the streptococci and also the vibrio of cholera, and many other microbes, have the property to become agglutinated under a condition, when a serum is employed, which is obtained by inoculation of the streptococci in question, and closes with the remark that it is very probable that the valuable serum mentioned will act as a curative over the streptococci causing the disease.—(*Monatsh. f. Thierheilk.*)

MORE STATISTICS IN REGARD TO SCHMIDT'S TREATMENT OF PARTURIENT APOPLEXY [*Rüsterholz Schweitz*]. — The author, after sending practical questions to many veterinarians, in regard to the results of the Schmidt's iodide of potassium treatment, received the reports of 197 cases, treated by 35 practitioners, and of which the conclusions are as follows: Of the 197 cases treated 154 (78.17%) recovered; 40 (20.30%) were slaughtered, and only 3 (1.42%) died; the results were thereby in 43 cases (21.82%) unsatisfactory. Of the 154 recovered cases 11 had to be slaughtered, in a relapse of a few days—5 for traumatic pneumonia, 2 for mastitis, 2 for disturbance in digestion, 1 for muscular rupture, and 1 for tuberculosis.—(*Archiv. f. Thierheilk.*)

ENGLISH REVIEW.

PERONEAL AND POSTERIOR TIBIAL NEURECTOMIES [*By Fred. Hobday, F. R. C. V. S.*].—The application of neurectomy to relieve peculiar forms of lameness has been for some time admitted into veterinary surgery, specially for the relief of lameness of the anterior extremity. For similar difficulty of the hind leg, the operation has not been used so often, principally from the fact that the sequelæ are too severe and that at best only relief for a varying length of time was all that could be expected. Professor Hobday, of the Royal Veterinary College, in the *Journal of Comparative Pathology and Therapeutics*, records a series of experiments which he has made and the results which he has obtained in performing peroneal or posterior tibial, or both, on subjects affected with spavins, ringbones, indurated windgalls and chronic sprains of tendons. From these operations it is shown that, in five instances, the double operation was performed, while the peroneal nerve alone was cut in eight cases and the posterior tibial only in nine cases; that where the spavin was the only lesion detected, section of the peroneal gave relief in five cases, and in two cases of the posterior tibial lameness was perceptibly improved; that in cases of chronic sprained tendons, with great pain, and where the lameness is not mechanical from contraction, posterior tibial neurectomy has rendered an otherwise useless horse fit for work again for a time in seven cases, and that there is great risk of ruptured tendon or of the foot sloughing, as it occurred in three cases, a complication which the owner of the horse should always be warned of.—(*Journ. of Comp. Path. and Therap.*)

GYMNASTICS EXTRAORDINARY.—Under this heading Mr. H. J. R. Pope relates the case of a fox terrier which was brought to him suffering from concussion of the brain from a fall he had made in jumping over a railing and tumbling a distance of 103 feet and 11 inches onto solid concrete. No treatment was adopted apart from the concussion of the brain; the patient was simply left quiet and fed on sloppy foods. Beyond a little stiffness he showed no soreness and never refused a meal. In four days he was discharged.—(*Vet. Record.*)

BULLET AND SHELL WOUNDS IN HORSES [*By Vet. Lieut. R. C. Cochrane, A. V. D.*].—Fifteen horses, wounded at the battle of Colenso with Mauser bullets or shells, were treated by the author, with 13 radical recoveries, one killed, and one death from bowel complication. Mr. Cochrane remarks that for a couple of days after admission the animals were very nervous and scoured greatly. The wounds caused by the bullets were small and with little or no discharge. The shell wounds were larger and nearly all suppurated freely. When the pieces of shell were not extracted, the wound took longer to heal and discharged more profusely. The treatment consisted in strong spray of water from a hose pipe once or twice a day, when the wound was then dressed with either chinosol, iodoform or boric acid; all the wounds were covered first with antiseptic wool and then with butter muslin, which is less irritating and prevents the access of flies. Most horses were operated upon for the removal of the foreign bodies which were accessible, in the standing position, sometimes even without a twitch.—(*Vet. Record.*)

FRACTURED FIRST RIBS [*By W. W. Goldsmith, M. R. C. V. S.*]—To serve to add to the history of "dropped elbow," with fracture of the first rib, the author reports the history of an aged mare to which he was called to relieve from an attack of colic. He left her after being a while comparatively easy, but when he returned a few hours later, he found her very lame on the off fore leg, with her elbows dropped. She ate well. In the morning she was unable to get up, except after considerable struggling, and then stood only for a few minutes. She was slaughtered, and at the post-mortem the first and second ribs were found broken on both sides. The author believes that she tried to lie down during the night, and the off leg being powerless she fell on the sternum, breaking the near ribs.—(*Vet. Record.*)

ACCIDENT TO THE FOOT OF A HORSE [*By A. Rogerson, F. R. C. V. S.*].—A brown gelding, 13 years of age, was used for the class of work known as truck shunting, and for seven or eight years he had done his work well, without mishap beyond a few slight injuries. One day while he was pulling an empty truck, his near hind leg slipped and the wheel passed over the outside corner of the shoe; the horse felt the resistance, made a greater effort to release his foot, and in so doing snatched his foot completely out of the horny box. He was destroyed at once. Previous to this accident the foot of this animal had been perfectly healthy and sound, and neurotomy had never been performed on him.—(*Vet. Record.*) [A similar accident occurred to a horse in Brooklyn. Becoming cast in his stall, he pushed his off hind foot through the stall partition, the shoe catching firmly in the opening, and he was found the next morning minus the entire hoof, which had parted from the keratogenous membrane with very little laceration. The foot was perfectly healthy, and the hoof has been in my collection of specimens ever since.—R. R. B.]

CELLOIDIN AND CHINOSOL [*By E. P. Edwards.*].—*Celloidin.*—For the author, this substance is far superior to collodion for fresh and surgical wounds with a view to obtaining healing by first intention. It is especially useful in wounds of the teats, eyelids or with those of small patients. It has given excellent results to Mr. E. in cases requiring antiseptic dressings by the addition of iodoform. *Chinosol.*—The author prefers its use to that of potassium iodide in milk fever. He claims that comparing the two chinosol has given him better results. Injections of 40 or 60 grains of pure chinosol in one or two quarts of boiled water give more rapid control of the cerebral symptoms, excitement and pain than the iodide. The percentage of complete recoveries is higher. In mammitis, the author uses it in hard and inflamed udders, from whatever causes. An injection of 20 grains of chinosol in one pint of boiled water for each diseased quarter gives best results. In a series of cases he has found the animals get well in from 12 to 24 hours. The treatment is perfectly harmless and deserves a trial.—(*Vet. Record.*)

RUSSIAN REVIEW.

CONTAGIOUS LAMENESS OF HORSES [*By Sotsevitch*].—Under the name of *Potchitchoni* is known an epizoötic affection of the digital extremities of horses. It affects most ordinarily one foot at a time and appears with great lameness, before any local lesion is manifest. Then, in the diseased region vesicles of small size occur, filled with white yellowish exudate, which soon becomes purulent. The skin soon sloughs, then the cellular tissue beneath, the aponeurosis, muscles and tendons, and leave an ulcerated wound of various sizes, from which flows a yellow fœtid abundant discharge. The skin of the region becomes yellow, the hairs are staring and drop out, the epidermis falls off. At the onset the animal is dull and has no appetite, the temperature rises to 39.5° and above; then the inflammatory manifestations subside, the sore foot carries weight and the outer symptoms disappear. The skin gradually returns to its normal condition and recovery is completed in 2 or 3 weeks. The affection is more commonly localized around the coronet and seldom extends beyond the first phalanx. If it goes higher it is less serious. Complications toward the hoof are not uncommon; purulent infiltration and partial separation of the wall may be observed then; sometimes synovial sacs ulcerate when the disease progresses towards the joints. Lastly, when the inflammation is extensive, the skin may remain much thickened and the leg look like that of elephantiasis. Bacteriological researches have shown in the vesicles *staphylococcus pyogenes aureus* and *streptococcus pyogenes*. It is easy to understand the action of these two microbes, which can live a long time on the ground, especially when it is damp, and hence enter the organism through the abrasions of the skin of the digital extremities. The treatment is simple and consists in dressings with sublimate. Prophylaxy consists in isolating the sick from the well animals, and in avoiding the low marshy lands where the microbes possess all their vitality.—(*Archiv. Veterin. Naouk and Rec. de M. Vet.*)

TREATMENT OF CAPPED ELBOW BY COLLODION AND LIGATURE [*By Ouchmorov*].—When capped elbow contains liquid, or only begun to become organized, the author treats them as follows: The hairs are shaved all over the extent of the tumor; the skin is then washed with green soap and rubbed dry. All over the indurated part of the tumor, ordinary collodion is spread. If there is a wound iodoformed collodion (4 per cent.) is used. During the first week the application is made daily, then every two days. Generally after three weeks the tumor has disappeared. When the tumor is indurated or of cartilaginous consistency, collodion is powerless. The author recommends its removal as follows: An incision is made through the skin all around on the base of the growth; in this a ligature firmly tight is applied; the tumor is then projecting much and its excision is easy with a bistoury or the thermocautery, which is better, being aseptic and arresting hæmorrhage. Generally the sequelæ are very simple.—(*Archiv. Veterin. Naouk and Rec. de M. Vet.*)

FRACTURE AND RESECTION OF A RIB IN THE HORSE [*By Blisnakov*].—A horse, one of a team, took fright, made a jump sideways and fell on the pole and one of the harness hooks tore his right flank, fracturing the last rib on the same side. The cutaneous wound measured about 20 centimetres, but the muscles under were torn about 50 centimetres long. The region of the last rib was somewhat swollen, the fracture of the rib was well detected; the upper segment was concealed by the muscles; but the lower one was pushing upwards and outwards. The skin of the flank was sutured with antiseptic thread and a bandage applied around the chest to keep the lower fragment of the rib in place. This proving unsuccessful, excision of the lower portion of the rib was decided upon. The operation was done with the animal standing. The skin was divided on a level with the fracture, as well as the muscles beneath the incision, being vertical and six or seven centimetres long. The costal piece was thus exposed, pulled outwards as much as possible and resected 16 centimetres below the fracture. The lower end of the rib which remained fixed to the sternal cartilage, resumed its normal position. Cicatrization went on without complication.—(*Archiv. Veterin. Naouk and Rec. de M. Vet.*)

REVIEW OF BIOLOGY.

HEPATIC TREMATODS OF BIRDS [*By A. Railliet*].—Contrary to what may be believed, the biliary tracts of birds have yet been very incompletely explored to the point of view of researches for parasites. Mr. Railliet has made a certain number of observations which have allowed him to study various forms of trematods, partly new or little known. They are seven in number and are found in various species of crows, magpies, jays, blackbirds and sparrow hawks. A somewhat curious fact is that all the parasites belong to the gender *Dicrowelium* (Dij), such as recently defined by Loys, while a good number of hepatic trematods of birds to this day belong to different genders.—(*Soc. of Biol.*)

PIROPLASMA CANIS—INFECTIOUS JAUNDICE OF THE DOG [*By P. Leblanc*].—The author has already announced that he has found hæmatozoa in the blood of a dog affected with infectious jaundice. He offers four new observations, which lead us to believe that in all the cases of infectious jaundice of the dog these parasites are found, and that they play an important, if not an exclusive part in the pathogeny of this disease. These hæmatozoa are very analogous to those discovered by Dr. Marchome in the dogs of Senegal. They are much bigger than those of cattle or sheep. They are rare in the plasma; 1, 2 or 3 may be found in the same globule; they are spherical or ovoid, rarely pisiform; sometimes they look like two ovoid masses united by a contracted part.—(*Soc. of Biol.*)

INFLUENCE OF THE PHYSIOLOGICAL WORK OF TISSUES UPON THE PRODUCTION OF LYMPH [*By Prof. G. Moussee*].—Continuing his experiments on the lymphatic circulation and studying the influence of work upon it, the author seems to demonstrate: (1) that the physiological work of the cephalic regions increases enormously the lymphatic circulation; (2) that the muscular actions seem to act principally upon the secreting influences.—(*Soc. of Biol.*)

INFLUENCE OF STATICAL WORK OF TISSUES ON THE ELABORATION OF LYMPH [*By Prof. G. Moussee*].—It is considered that the experiment of Hamburger demonstrates the error of the part played by the pressure of the blood in the elaboration of lymph. A lymphatic fistula is made on the neck of a horse, then the head being kept immobile, the body and legs are made to move. Under this influence of work, pressure diminishes in the carotid and jugular, and yet the flow of lymph is double or treble. The author has renewed the same experiment in stricter conditions and has obtained the same results. But it must be remarked that for the body and legs to perform an apparent work, the muscles of the neck must be kept in a moderate state of contraction to give the head and neck a sufficient rigidity and fixity. Then it is again in this case the organic work which represents the principal source of the elaborated lymph.—(*Soc. of Biol.*)

ON THE RESORPTION OF THE BLOOD INJECTED IN PERITONÉAL CAVITIES [*By J. Lesage*].—From the experiments of Hayem it is known that the blood injected in the peritoneum is absorbed in nature and returns to the general circulation with its proper elements. Lesage made a fistula of the thoracic duct in a large sized dog ; then he isolated the carotid and transfused 200 cc. of carotidian blood in the peritoneum of the same animal. He observed that, one hour after this abundant hæmorrhage experimentally produced in the peritoneum, the red globules soon began to pass freely, without alteration and in great number through the thoracic duct. Then, by a strong diapedesis on the peritoneum, the leucocytes come to surround the hematics that remain, they re-enter with them in the thoracic duct, in such a manner that the serous membrane has a few days after the transfusion resumed its normal aspect.—(*Soc. of Biol.*)

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TRISTEZA OR BOVINE MALARIA IN ARGENTINE REPUBLIC. By Prof. J. Lignières.

Under this name is published the result of the second year of the scientific mission of the author, which he has dedicated to Professor Nocard, and in which are found facts which are entirely new, with others which come to confirm those already known of Texas fever.

Tristeza is identical with this last named disease, already so well studied by our American *confrères*, Smith and Kilborne.

It prevails in the endemic state in the north of the Argentine Republic, killing animals by the thousands and inflicting losses that are counted by millions of dollars. It is principally after long warm seasons that it appears, assuming two forms—one benignant, the other severe. This last affects adults in preference, and is characterized by dullness, fever and hæmoglobinuria. Death ordinarily takes place in two to eight days; few animals recover. The benignant form, more special to young animals, may pass overlooked.

At the post-mortem, the lesions found are: great hypertrophy of the spleen, which is hard and friable; the liver is congested when death takes place rapidly; it is yellow and easily torn if the disease progresses slowly. The kidneys are congested, almost black, or again pale and soft if death is slow. The blood is clear, pale in color and coagulates well. The destruction of the blood corpuscles is very remarkable; from 8,000,000 to 9,000,000 in cubic millimetre (normal number) they drop to 1,800,000 or even to 300,000. Hæmoglobinuria is due to this rapid destruction of the corpuscles.

The disease is very fatal. The author records an observation of a herd of 1000 cows and 450 calves, in which 630 adults and 10 young only died.

Smith and Kilborne have shown that Texas fever was due to an endoglobular parasite, the *piroplasma bigeminum.* Mr. Lignières shows that tristeza is due to the same parasite, whatever form it may assume. One single corpuscle may contain one, two, three, or even four piriform or rounded agents. In some cases 30% of the red corpucles are infected; in others, it is difficult to detect the parasite. Along side infected corpucles, giant hematics can be seen containing fine and numerous granulations; these are not of parasitic nature. On the contrary, they are a sure sign of the victory of the diseased organism over the parasite of malaria.

Prof. Lignières has succeeded in detecting the mode of development of the *piroplasma*, in the blood and in the cultures which he has obtained with infected blood in hæmoglobinemic serum. The parasite gives two species of spores: one *active*, which forms very rapidly, and goes to fix itself on sound corpuscles, and produce a new parasite; this spore loses rapidly its properties outside the organism; the other, *passive*, which develops slowly by complete retraction of the protoplasm of the parasite; this is the true resisting form, but is powerless to produce infection without the help of a promoting cause.

Prof. Lignières has succeeded in transmitting experimentally malaria to 127 bovines by intravenous or subcutaneous vaccination of infected blood. All animals other than bovines are refractory.

Smith and Kilborne have proved the part played by the tick (*Syodes bovis* of Riley, *Boöphylus bovis* of Curtice, *Rhypicephalus annutatus* of Say), in the spreading of Texas fever. In Argentina, says Lignières, the presence of malaria coincidates exactly with that of the tick. The author has found the *piroplasma bigeminum* in the bodies of ticks. Yet, a great number of infected ticks, crushed together, have been inoculated under the skin of cattle without producing the disease, while a few of these parasites placed on another steer gave him malaria. Indeed, the *rhypicephalus* contains the virus in the state of passive spores, which by themselves are powerless to produce the disease; in natural contagion, it is the venomous saliva of the tick, deposited in the prick with the passive spore, which insures its growth and afterwards the disease.

No treatment can succeed with that disease; prophylaxy alone can. First of all, attention must be given to the ticks, essential agents of the transmission of the disease; animals must not travel through regions infested by ticks. Animals born in infected regions offer a great resistance to the disease on account of the immunity gained by benignant attacks during the first months of their life. The parasite never does entirely disappear from the organism of animals that have resisted the disease and their presence is not in contradiction to the idea of immunity. Lignières shows that in malaria, the refractory condition is the consequence of successive immunities, which explains its persistency.

Taking into consideration the resistance of young animals, it was thought to expose them to the infection of ticks with the idea of giving them a benignant form of the disease, and thus give them certain immunity to resist another fatal attack. But this method has the objection of often giving a deadly disease to young animals and of creating new centres of tristeza.

Prof. Lignières has then looked for a more practical mode of vaccination. He says: "I have tried to attenuate the virulency of the *piroplasma;* the results that I have obtained so far are not yet perfect, but I am convinced that a vaccine shall be found whose inoculation will transmit the benignant form of the disease."

Since the publication of this excellent book, Prof. Lignières has kept up his experiments. In a great public experiment made at Buenos Ayres, he has vaccinated bovines with complete success, not only against experimental inoculation of the disease, but also against the natural infection by ticks.

It is the first time vaccination has been used against a disease due to hematozoars. This is an important discovery, which may conduct to a similar application against paludism of man.

Prof. Lignières has done well for science and his country can be proud of him. A. L.

SURGICAL OPERATIONS. By W. Pfeiffer, of the Berlin Veterinary High School, and W. L. Williams, of the New York State Veterinary College. W. R. Jenkins, New York; Ballière, Tindall & Cox, London.

One of the neatest and most useful books that has been contributed to English veterinary literature during recent years has just appeared under the above title. This little book is from the pen of Dr. W. L. Williams, Professor of Surgery in the New York State Veterinary College, Cornell University, Ithaca, N. Y. It is in part translated from a similar work by Dr. W. Pfeiffer, Assistant in the Surgical Clinic of the Veterinary High School, Berlin. A considerable portion of the material is original. Two important new operations are described by the originators.

In some respects the old teaching of operative surgery has been open to criticism. One criticism would be the lack of actual performance of operations by the student. This little book, taken as a text-book and guide for actual work, ought to assist in removing the class room difficulty, and also assist the practitioner in making up what he lost by having been born several years too soon. Dr. Williams has omitted some portions of the original, and has added some material that belongs distinctly to recent American surgery. For instance: McKillip's staphylotomy; Merillat's arytenoideraphy, and Williams' operations for trifacial neurectomy, extraction of molars, repulsion of molars, caudal myectomy, and vaginal ovariectomy.*

The operations described in the book have been divided into four groups: Operations on the head; operations on the neck; operations on the trunk and genital organs; and operations on the extremities. There is no part of the subject matter that is not of the utmost importance; nor could complicated operations be more simply and accurately described. But one method is given for each operation, and confusion is thus avoided. Each method has been selected by a master, and so the inexperienced are safe in operating under this guidance.

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* This operation is given in full in the "Department of Surgery" in this issue.

Some things have been omitted that we might wish had been included, but there is nothing that we might wish had been omitted. There are many who can operate, but few who can describe their operations so as to give the description any teaching value. The writers of this little book have demonstrated that they can do both. There are few operations with which the recent graduate has more trouble in actual practice than the extraction of molars; and there is probably no operation so poorly, so unsurgically performed in routine practice as that of molar repulsion. The operation as described by Williams becomes surgical and effective.

An error in translation has resulted in a transposition of levers of the first and second classes as applied to tooth extracting forceps. The illustrations may be justly criticised in some cases. For instance: Fig. 31, illustrating digital neurectomy, shows the incision too far forward. Fig. 28, illustrating the stringhalt operation, suggests an incision that appears rather high. If a student should read the text carelessly and guide his incision by the illustration, he might go through the annular ligament and get into the lateral extensor bursa, which would not be good surgery, although not necessarily serious in result.

Figs. 1 and 2, illustrating extraction of molars, are very instructive and satisfactory. Fig. 4, showing the sites of the various trephining operations, is satisfactory in that it shows where to trephine; but it can hardly be commended as being artistic. The same criticism may be made of Fig. 8, illustrating trifacial neurectomy. Taken all in all, the illustrations are to be praised because they do illustrate, and some of them are artistic.

This little work has been needed for some time, and the American veterinary profession is to be congratulated that so able an operator and teacher as Dr. Williams should have undertaken it.

My impression after going through this little book quite thoroughly can be expressed fairly well by saying: "That is business; that is surgical surgery. We need not be ashamed to invite our surgical M. D. brethren to witness a clinic of that kind."

M. H. R.

CATALOGUE OF AGRICULTURAL AND VETERINARY INSTRUMENTS. H. Hauptner, Berlin, N. W.

This new catalogue deserves more than an ordinary mention.

It is a true album where by excellent engravings the most varied instruments are represented as being those most used in all the branches of veterinary medicine, bacteriology, etc. The descriptions of the entire series are given in three languages—German, French and English. The care with which the catalogue is gotten up permits the reader to find in it other than commercial information. It contains many instruments and objects of interest and importance. All the veterinary schools of the whole world are represented by one or several excellent photographs, which give a good idea of the importance and arrangement of each of those establishments. These are accompanied by short sketches relating to the organization of the schools, the faculty, curriculum, etc.

This unique album of 242 pages is profusely illustrated and 25,000 copies printed, which are offered gratuitously to veterinarians. It is published by the house of H. Hauptner, Luisen Strasse 53, Berlin, N. W. A. L.

DR. JAMES MCDONOUGH, of Montclair, N. J., was prevented from attending the meeting of the State Association on account of his father being on his death bed. The entire profession of New Jersey sympathizes with Dr. McDonough in his bereavement. Dr. McDonough rendered valuable aid to Dr. Lowe in effecting the amalgamation and enjoys the respect of every member of the State Association.

IMPROVEMENTS IN THE BUREAU OF ANIMAL INDUSTRY.

The service of the Bureau of Animal Industry is constantly being made more desirable for veterinarians. Beginning with this year a leave of absence of two weeks with pay is allowed each year.

Veterinarians secure appointment at $1200 per annum almost as soon as they have passed the civil-service examination. Those who passed the regular examination in April were all appointed within a few weeks of the time their papers were passed upon. A special examination was held in July, and all who passed that have received appointments. The regular fall examination will be held at various points throughout the country on October 23, and persons desiring to take the same should make application to the Civil Service Commission at Washington at least two or three weeks in advance of that date.

There are now in the Bureau service 275 veterinarians, and further appointments will be made as soon as the next civil-service examination has been held.

The following promotions have been made since January 1, 1899:

Dr. Louis Abel	New York City	From	$1200	to	$1400
Dr. Harry B. Adair	Kansas City	"	"	"	"
Dr. Leslie J. Allen	Kansas City	"	"	"	"
Dr. O. G. Atherton	Chicago	"	"	"	"
Dr. Lewis R. Baker	Hammond, Ind.	"	$1400	"	$1600
Dr. S. E. Bennett	Kansas City	"	$1600	"	$1800
Dr. Thomas A. Bray	El Paso, Texas	"	$1200	"	$1400
Dr. Lowell Clarke	South Omaha	"	"	"	"
Dr. Louis P. Cook	Cincinnati	"	"	"	"
Dr. S. E. Cosford	Lincoln, Nebr.	"	"	"	"
Dr. E. T. Davison	Leavenworth, Kans.	"	"	"	"
Dr. L. Enos Day	Waterloo, Iowa	"	"	"	"
Dr. F. L. DeWolf	Chicago	"	"	"	"
Dr. George Ditewig	Davenport, Iowa	"	"	"	"
Dr. O. E. Dyson	Chicago	"	$1600	"	$1800
Dr. A. T. Everett	South Omaha	"	$1200	"	$1400
Dr. George C. Faville	Norfolk, Va.	"	$1400	"	$1600
Dr. Nathan K. Fegley	Jersey City	"	$1200	"	$1400
Dr. James Fleming	Chicago	"	"	"	"
Dr. Louis K. Green	Detroit	"	"	"	"
Dr. H. W. Hawley	Chicago	"	"	"	"
Dr. F. W. Hopkins	Cairo, Ill.	"	"	"	"
Dr. U. G. Houck	Chicago	"	"	"	"
Dr. E. N. Hutchinson	Portland, Ore.	"	"	"	"
Dr. G. A. Johnson	Sioux City, Iowa	"	"	"	"
Dr. James Johnston	Boston	"	"	"	"
Dr. Benj. F. Kaupp	Kansas City	"	"	"	"
Dr. Charles Keane	Los Angeles, Cal.	"	"	"	"
Dr. James S. Kelly	Quincy, Ill.	"	"	"	"
Dr. F. D. Ketchum	South St. Paul	"	"	"	"
Dr. R. R. Letts	New York City	"	"	"	"
Dr. A. McBride	Jersey City	"	"	"	"
Dr. Harry G. Moore	South St. Joseph	"	"	"	"
Dr. W. J. Murphy	Brightwood, Mass.	"	"	"	"
Dr. Don W. Patton	South Omaha	"	"	"	"
Dr. A. G. G. Richardson	Boston	"	$1600	"	$2000
Dr. O. W. Snyder	Eau Claire, Wis.	"	$1200	"	$1400
Dr. R. P. Steddom	Washington	"	"	"	"
Dr. Walter J. Stewart	Milwaukee	"	"	"	"
Dr. E. L. Volgenau	New Haven	"	"	"	"
Dr. J. Wilson	South Omaha	"	"	"	"
Dr. Morris Wooden	Chicago	"	$1400	"	$1800
Dr. C. H. Zink	Buffalo	"	$1400	"	$1600

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The thirty-seventh annual meeting was called to order at 10.15 A.M., Sept. 4, by President Leonard Pearson, in the large convention hall of the Russell House, Detroit, Mich., in the presence of over two hundred members, visitors and ladies.

President Pearson announced that Hon. Wm. C. Mayberry, Mayor of Detroit, would address the Convention, which he did in a manner that won all hearts, and when he had extended the hospitality of the citizens of the beautiful city which he represents, all felt that they were indeed welcome. His address was full of beautiful thoughts *apropos* to the character of his auditors. He compared the purposes of this gathering—the dissemination of scientific knowledge ; the interchange of medical truths gathered through research or experience—with the methods of a century ago, when any medical secret was carefully guarded for the personal pecuniary advantage of its possessor, whose death usually caused the obliteration of his secret, and the world of medicine was none the better for the discovery. But now the archives were at once sought and there the fact was recorded for the benefit of mankind and the science of medicine, while others are at liberty to take up the subject, more fully develop it and place it back in the records for the common good. He paid a glowing tribute to the work of the late Henry Bergh, and when he had finished the applause was long and loud.

Dr. W. Horace Hoskins, of Philadelphia, was called upon to respond to the Mayor, and he did so in that happy strain that makes him a welcome guest wherever public speaking is a feature. He deprecated the fact that his appearance on the platform with Mayor Mayberry made an unpleasant contrast, since the latter represented a successful Democratic mayoralty candidate, while he stood as an example of a defeated one. But he made some telling points while accepting the Mayor's generous hospitality by notifying him of his wonderful opportunities for good while directing municipal affairs, as the important subject of the purity of food products was ever pressing for solution.

President Pearson then read his annual address, which was listened to with the closest attention. The following is the full text of

THE PRESIDENT'S ADDRESS.

GENTLEMEN :—The past year has been one of great progress in our Association affairs, and in the development of our profession. The schools are receiving more support and are improving. Laboratories for research work in veterinary pathology are being improved and enlarged, and new ones have been established. Under the stimulus of increased demand for their services and higher rewards, the veterinarians of the country have given more attention to their organizations, have strengthened them, and, by co-operation, advanced the status and the conditions governing their calling.

In so far as this applies to our own organization, you will be told more by the Secretary, that vigilant, untiring officer who keeps in touch with all of the details of the work of this international society from year's end to year's end, planning, pleading, prodding, as conditions require, or as instructed by you. The Secretary's office has steadily grown in importance, and is now the great reservoir and mainspring of the official work of this organization. The amount of time and thought required to satisfactorily conduct the affairs of that office and the difficulties experienced in arranging for a meeting such as this, and in keeping up the correspondence with nearly 400 members, can scarcely be appreciated by one who has not undertaken it.

Do we compensate the Secretary sufficiently for the time he must take from his personal work and devote to our business? I believe that this question should be carefully considered.

Our organization is now stronger and its influences are broader and more potent than ever before. We will better appreciate the meaning of this if we recall some of the achievements of this body, as, for example, the success of its efforts in the direction of lengthening the courses of instruction in the veterinary schools. When this matter was taken up a few years ago, but three veterinary colleges in the United States and one in Canada required three years attendance. At this time there are but two colleges in this country and one in Canada that do not require three years attendance, and this out of a total of 16. Moreover, the requirements for entrance are gradually being raised, and students that are better prepared for the study of the veterinary sciences are now being required and received. These great advantages are in part a natural development, but there can be no doubt that they have been encouraged and hastened by this body.

Whatever change of sentiment there may be among the members of Congress and on the part of the public in regard to the proposition to confer the authority and dignity of rank upon veterinarians in the United States Army, is due principally to a few members of this body working as members of special committees. Especial mention should be made of the faithful labors of Dr. D. E. Salmon, and of Dr. R. S. Huidekoper. By the efforts of these gentlemen, aided most valiantly by the members of this Association and the veterinary profession at large, it was possible at the last session of Congress to make a greater advance in the matter of placing veterinary work in the army on a proper basis than has ever been possible before. The bill drafted by your committee has passed the Senate, and has gained friends in the House of Representatives, and has secured the endorsement of the President. It now remains for us to continue to follow the leadership of our Committee on

Army Legislation, to sustain and aid them in the continuation of their difficult work. If they shall fail this year to secure the enactment of this reform that the army needs so sorely, we must not be discouraged, but continue the struggle until the military veterinarians are given commissions and are organized into a compact and serviceable corps with a veterinarian at their head, whose rank is in proportion to the magnitude and importance of the work he is required to control.

I believe that the veterinary profession of the United States is determined to have its due in this matter, and is determined that the army shall have a veterinary equipment that will be a credit to this country. The ancient system now in vogue, that is the source of enormous losses to the tax payers, that lessens the efficiency of the army, and is an insult to the veterinary profession, must be supplanted, no matter how much time and effort are required to do it.

In the publication of veterinary literature, this Association has always taken a prominent and leading part. The oldest veterinary periodical in this country was originally the journal of this Association. During recent years its annual proceedings have constituted most important contributions to our literature. These volumes reflect the thought, the attainments, the ideals and purposes of what is highest and best in our profession. It is fitting, therefore, that they should appear in a form that is commensurate with all they represent.

In the encouragement and development of the public relations of veterinary work, this Association has always taken a foremost position. This will be shown by reference to the resolutions adopted at our annual meetings. These resolutions have come to be looked upon as the authorized voice of the veterinary profession, and it is, therefore, important that they shall always be well considered, conservative and safe.

The papers that have been read at the meetings of this Association, and the discussions that have taken place have had the effect, in large measure, of solidifying and unifying the thought and effort of veterinarians on questions of moment. The methods employed in controlling various infectious diseases, and the organization of State Boards of Veterinary Medical Examiners are instances in point.

The development of knowledge of disease and of effective methods of prevention and cure during the past decade, has been marvelous indeed. It is gratifying to consider that much of this advancement has been the work of comparative pathologists and of veterinarians. It is only quite recently that the advantages that may be derived from the study of comparative pathology in relation to the development of the whole subject of disease, and especially to human diseases, have been recognized. In fact, scarcely any attention was paid to this subject until Bollinger explored the almost virgin field of animal pathology thirty years ago, and Virchow and Birsch-Hirschfeldt also recognized the value of the broadening discipline and the new lights to be derived from the study of the diseases of animals. Attention has been forcibly drawn to this subject by the researches of Johne, Kitt, Smith, Moore and McFadyean. In the realm of bacteriology, students have not drawn sharp lines between genera, and confined their studies to the organisms that attack a single kind of animal. Many bacteriologists, following the example of the great leaders, Pasteur and Koch, have studied the bacterial diseases of useful animals. The idea is gaining ground that disease must be studied as disease in the broadest sense possible, and not, as heretofore, as a morbid process confined to a part of the body of a single species of animal.

"Comparative pathology" already has a familiar sound and laboratories are being erected or equipped and enlarged to make special provision for this new development. This movement is evident not only in this country, but abroad as well, and notably in Germany. The result of this, it is hoped, will be to throw new light on many of the obscure points in the pathology of the disease of animals and overcome the condition that Johne described in explaining why he did not finish his text-book on pathology that was announced ten years ago. He said, "The pathological institutes in human medicine are filled with young physicians who have sought and found in this field a subject for a thesis or are undertaking advanced work. This results, at least, in the accumulation of a plentiful amount of material that without too much labor can be sifted and worked over. Thus building stones are made from which the master can erect a building. Of this, veterinary pathology has nothing. The teacher of veterinary pathology is not supplied with sufficient help and has scarcely time to attend to the current work of his department, the post-mortems and courses and lectures, if he is thorough in them. There are no positions to strive for or other encouraging conditions to attract young veterinarians to provide building stones for great text-books."

Since these words are true of the conditions in America even more than in Germany, we hail with joy any movement that promises to provide facilities for and to encourage workers in comparative pathology.

It is not at all likely that this development will fail to receive a warm and sympathetic welcome. We must not be content with this betterment, however, nor shall we fall into the error of thinking that this is all of the veterinary sciences. We must not allow the other essential veterinary sciences to be neglected and fail to develop in proportion to their fellows and their own innate importance.

If comparative pathology is taken up by laboratories usually conducted by physicians and principally for the purpose of throwing light on the diseases of man, and if our veterinary teachers must go to this source for their facts, we must allow all of the veterinary sciences to be humanized in the same way and developed as side issues to subjects that are conceived to be more important.

Our veterinary schools and veterinary departments of universities must always stand on independent bases. It will never do for them to become lesser departments incidental to schools of medicine, for example. If any arguments are needed to support this contention they may be found in the vast importance to the nation of the interests that are protected and fostered by the veterinarians and in the histories of veterinary schools in other countries.

First, veterinarians guard the greatest income producing property in the United States. Live stock husbandry is the most profitable branch of our agriculture; it feeds more people and furnishes more homes than any other branch of manufacturing commerce or trade. It furnishes the material for exports amounting to more than $200,000,000 per annum. It represents an investment of more than $2,000,000,000. The success of our agricultural population comprising 58% of the people of the country, depends on their horses, cattle, sheep, swine and poultry more than on any other factors.

Moreover, the butchers, the milk dealers, the creameries, woolen mills, tanneries, shoe factories, hat factories and numberless other smaller interests and industries depend on animals and animal products. The protection and development of such interests as these are worthy of the most earnest attention of statesmen, scientists and educators.

Second. The experiment has been tried in Europe of establishing veterinary chairs in universities and attempting to provide veterinary courses without the complete equipment of a veterinary school. Such experiments at Halle, Leipsic and Giessen have failed. The successful work of investigation and instruction in the veterinary sciences in Europe is done in separate veterinary schools, as at Berlin, Dresden, Hanover, Alfort and Vienna. There are, perhaps, three seeming exceptions to this rule. In Berne, the veterinary school has during the past year been made a department of the University, but its separate plant and faculty are preserved. In Copenhagen and Buda-Pest, the veterinary schools are associated with schools of agriculture, but each has its special equipment and faculty and this union appears to be advantageous to both institutions.—

If the veterinary sciences are dominated by comparative pathology, there is danger that the point of view of the veterinarian will become narrow and that he will not be competent to apply to the best advantage the knowledge of comparative pathology that he possesses. This statement may at first seem paradoxical, but my thought is that it is necessary for a veterinarian to be thoroughly familiar with animals in health before he can treat them successfully *or economically* when they are diseased. It is necessary to know the breeds, values, foods, methods of rearing, using, etc., in order to be in a position to discover and remove causes of diseases or advise appropriate treatment. This idea was illustrated to me by Professor Dieckerhoff, who said of a certain eminent physiologist, a professor in a veterinary school, "He could teach veterinary physiology better if he could ride." That is, if this great scientist had possessed some familiarity with animals, he could have extended and applied his profound knowledge beyond the walls of his laboratory and lecture hall to animals in the stable and pasture. There is as much in the application of principles as in propounding them. It is not enough to have a set of tools, one must know how to use them.

In spite of the prevailing popular impression, the veterinarian is more than a doctor of diseased and maimed beasts. And he is himself responsible for the narrow bounds that circumscribe his field of labor in the popular mind. In this country the title "Doctor" does not commonly convey the impression of a learned man, but to the plain person it signifies one who doctors. Now, veterinarians have insisted upon the title of Doctor, whether conferred upon them by their college or not, and the result has been that veterinarians are commonly regarded as men whose sole business it is to doctor animals, and this is considered the single object and the end of their technical equipment.

In other countries veterinarians do not covet the title of Doctor and it results that they are not regarded as members of the least important branch of a noble profession, but stand on the footing of their own.

Partly on the account of the narrowing effect of a useless title, and partly through failure to realize the importance of the subject, veterinarians have not cultivated to the extent they deserve what might be called the physiologic phases of animal husbandry. With his knowledge of comparative anatomy, physiology, chemistry, foods and the predisposing and exciting causes of disease, the veterinarian should be the natural expert on conformation, selection for special purposes, breeding, rearing, feeding, etc. He should also be thoroughly informed on stable construction and other practical questions related to the maintenance and utilization of animals.

As expert landscape gardeners, civil engineers and architects are consulted on the problems within their profession; so should veterinarians be consulted on problems relating to all phases of animal husbandry. Before this can occur largely it will be necessary for the public to relinquish the idea that veterinarians are useful only to patch up decrepit animals or to check the spread of disease and be educated to regard them as experts in animal husbandry—as animal engineers.

It is also necessary that our schools shall devote more attention to these subjects. At present our knowledge of many of these things is almost purely empirical; it remains for veterinarians to formulate it and to place it on a scientific basis whence it may advance. Most of the accurate work that has been done in these lines has been done by veterinarians, beginning with the illustrious Bourgelat, but there is an enormous field that is still untouched.

This association can do much to broaden the scope and practise of the veterinarian. It can encourage the reading of papers relating to the subjects that are usually grouped under the title "Animal Husbandry." It can appoint committees to report on special problems coming under this head. It can recommend the amplification, the deepening and broadening of instruction in 200 technical and allied subjects in the veterinary schools. When all of this is done the veterinary profession will be in more direct touch and in closer sympathy with the stockman and cannot fail to be of more service to the live stock industry and to itself profit by these more intimate bonds.

This thought must have been in the minds of those who planned and organized the federal Bureau of Animal Industry. It is fortunate that this bureau is established on broad lines, that it is not the Bureau of Comparative Pathology or the Bureau of Veterinary Police, but that its purpose is to improve the animal industry in every possible way and that its organic law is broad enough to permit this.

In the same way, so far as an individual may, each veterinarian should extend his knowledge and his practise and become an expert in animal engineering.

In dwelling upon this as a legitimate and desirable field effort I have not wished to appear antagonistic to any work the profession or this association may now have in hand. It is all important and should all be strengthened. It is your high duty as the representative body of the veterinary profession of North America—as the Veterinary Senate—to point the way of advance and to strengthen the hands of the laborers in the field.

A recess for five minutes was then taken and the announcement was made by the chair that the privileges of the floor would be granted to all veterinarians, whether members or not.

The calling of the roll was dispensed with and it was decided to obtain the names of those present by means of cards supplied at the entrance for the registration of each visitor.

The reading of the minutes of the New York meeting was also dispensed with, and reference to them as printed in the proceedings was made.

The first business was the reading of the report of the Executive Committee, held on Monday evening, at 8.30 P.M. There were present at that meeting Dr. Butler (chairman), Drs. Pearson, Brenton, Bell, Lowe, Salmon, Clement and Stewart, while the vacancies caused by the absence of Drs. Ramacciotti, Winchester and Peters were filled by the appointment of Drs. Dunphy, Johnson and McCurdy.

The proposed amendment to the constitution creating two additional vice-presidents was recommended for adoption, and the association sustained the action of the committee.

The trial of Dr. W. E. Wight, of Allegheny, Pa., for violation of the Code of Ethics in having used advertising posters, the Doctor appearing before the committee in his own defense, resulted in a recommendation for expulsion, which was unanimously voted by the association.

Charges were lodged of plagiarism against Dr. G. B. Blackman, of Georgia, and the committee directed the Secretary to notify Dr. B. to appear before it at its next annual meeting and explain the circumstance. The meeting sustained this action.

The charges against Dr A. J. Kline, of violating the Code were held in abeyance as the doctor promised not to repeat the offense of prohibited advertising.

The resignation of Dr. R. R. Dinwiddie, tendered at the last meeting, was withdrawn at the request of the association.

The resignation of Dr. Chas. W. Heitzman, of New Orleans, was accepted, the doctor having engaged in the practice of human medicine.

The proposal to elect to honorary membership Prof. Dr. Theodore Kitt was taken up, the by-laws were suspended and he was elected.

The following applications for membership were examined at the various seatings of the Executive Committee, and at its recommendation they were elected to membership:

NEW MEMBERS ELECTED.

Abele, F., Jr., Quincy, Mass.
Anderson, F. E., Findlay, O.
Beckett, E. C., 549 Albany St., Boston, Mass.
Blattenberg, J. H., Lima, O.

Burneson, J. C., Experiment Station, Wooster, O.
Butler, W. J., Fond du Lac, Wis.
Cass, W. S., 2826 Dayton St., St. Louis, Mo.
Castor, Thos., East Las Vegas, N. M.
Clark, W. G., Marinette, Wis.
Clute, H. P., Marinette, Wis.
Cooley, A. S., 1184 E. Madison Ave., Cleveland, O.
Craig, Robt. A., Experiment Station, Lafayette, Ind.
Crevier, C., 40 Howard St., Detroit, Mich.
Cunningham, A. E., 215 Huntington Ave., Cleveland, O.
Curtis, D. W., Cadillac, Mich.
Davison, D. A., Princeton, Ind.
Ellenberger, W. P., Care of Dr. W. E. Krieder, Wadsworth, O.
Elliot, H. James, Brandon, Man.
Fair, Wm. C., Cleveland, O.
Frothingham, Langdon, 20 Hereford St., Boston, Mass.
Fulstow, Harry, Norwalk, O.
Gay, Carl W., Ithaca, N. Y.
Gibbins, Johnson, 628 Granville St., Vancouver, B. C.
Gohn, H. M., St. John, Mich.
Green, L. Kenneth, Detroit, Mich.
Groves, John Wm., Hamilton, Ont.
Hamilton, Robt., Victoria, B. C.
Hernsheim, Jos. T., Kenosha, Wis.
Hewett, R. W., 2519 Clybourn St., Milwaukee, Wis.
Heyde, Wm. F., 1215 S. Jefferson St., St. Louis, Mo.
Howard, C. H., Calumet, Mich.
Klein, Louis A., 3626 Frankford Ave., Philadelphia, Pa.
Lacock, J. Stewart, Allegheny, Pa.
McCrank, J. A., Plattsburg, N. Y.
McClure, Stewart W., Helena, Mont.
McEachran, Wm., Windsor, Ont.
McFarland, C. M., Care of Cincinnati Abattoir Co., Cincinnati, O.
Miller, C. A., 613 Jackson St., Louisville, Ky.
Morrison, Robt. J., Nat. Stock Yds., 2, St. Louis, Ill.
Myers, Wm. Y., Ft. Wayne, Ind.
Nesom, G. E., Clemson College, S. C.
Nolan, S. A., cor. Dillon and Fifth Sts., Baltimore, Md.
Ruhl, Frederick P., Fairmont, W. Va.
Rushworth, Wm. H., Chicago, Ill.
Schmitt, Chas., Dodgeville, Wis.
Simpson, H. C., Denison, Ia.

Snyder, S. S., Cedarburg, Wis.
Stauffer, Adolf, 19 E. 11th St., Covington, Ky.
Summerfield, Jas. J., Santa Rosa, Cal.
Titus, Harry E., Purdue Univ., Lafayette, Ind.
Torrance, F., Winnipeg, Man.
Van Es, L., Mobile, Ala.
Wake, A. R., Cudahy, Wis.
Yonkerman, D. P., Kalamazoo, Mich.

REPORTS OF COMMITTEES.

The Publication Committee of 1899, through Chairman Williams, made a short but comprehensive report, showing the work performed by it, which report was accepted by the association.

The Army Legislative Committee then submitted its report through Chairman Salmon, which was as follows:

REPORT OF COMMITTEE ON ARMY LEGISLATION.

Mr. President:

Your committee which was appointed to urge suitable legislation for the improvement of the veterinary service in the United States Army and for the recognition of veterinarians in that service as representatives of a learned profession, would respectfully report that they have labored diligently to secure the desired objects and that a satisfactory measure is now pending. It is not necessary to go into details concerning the opposition which has been experienced. The opposition which has been most determined and most difficult to overcome has originated in the very department whose service we have been endeavoring to strengthen and perfect—the one department which would be benefitted by this legislation. The cause of this opposition appears to be principally the old narrow-minded and unAmerican prejudice existing against veterinarians among certain of the Army officers—principally the lieutenants. There is undoubtedly a feeling among this order of gentlemen that when a man becomes a lieutenant he belongs in a class by himself, that he is superior to and made of finer clay than ordinary mortals and subject to contamination if he associates with them on equal terms. He regards himself, like the Chinese sovereign, as the Son of Heaven, to whom all should bow down and render obeisance. He expects to be gazed at from afar, admired, feared, but he cannot endure the idea of equality, familiarity, least of all with veterinarians. According to his philosophy, if one son chooses as his profession the destruction of his fellow-man and in due time becomes a second lieutenant, and another son in the same family chooses as his life work the amelioration of suffering among God's dumb creatures, the latter, though equally refined, equally educated, equally intelligent, is unfit to associate with the former!

This absurd self-conceit, arrogance and bumptiousness, notwithstanding that it has done much to render the army unpopular with the masses of our people, and is doing its part towards preventing an increase commensurate with the development and needs of the country, has had its influence both in the War Department and in Congress, but can never secure the support of a majority of the representatives of the American people. The importance of an organized and competent veterinary service in the army is becoming more apparent every year, and every time a Senator asserts that a captain knows more about a horse than does a veterinarian, he inspires his listeners to ask mentally if not orally, Why on the same principle does not a captain know more about a man than does a surgeon? Why does he not know more about engineering than does an engineer? This is an age of specialties, and a captain cannot be his own surgeon, his own engineer, his own veterinarian, and at the same time attend to his other duties. This should be self-evident to the least experienced person. Fortunately these petty and antiquated arguments, though repeated *ad nauseam*, have not had much influence in the Halls of Congress. It is no longer the arguments which must be answered; it is the personal appeals which must be counteracted.

A bill has passed the Senate providing for a properly organized veterinary corps which would supply veterinary service for the cavalry, the artillery, the transportation department and the military schools. This bill has gone to the House of Representatives and is now in the Committee on Military Affairs. While the Secretary of War does not favor the legislation establishing a veterinary corps, he has recommended that the veterinarians in the cavalry regiments be given the rank of second lieutenants. This is a distinct advance for the War Department and is extremely encouraging for all who have worked these many years to secure some amelioration of the army veterinarian's condition.

This legislation has therefore reached the critical period. There has never been a time when the conditions were more encouraging for success. There never has been a time when there was a prospect of accomplishing so much. There never has been a time when the same amount of work would be as effective as it will during the next six months.

Your committee created to further the cause of army veterinary legislation, therefore, appeals to this Association and to the veterinary profession throughout the country to make a supreme effort now, while the prospects are so good, and to leave nothing undone which will contribute to success. Every one of the eight thousand veterinarians in the country should feel a personal interest in this legislation. It secures the full recognition of the Government for the veterinary profession. It raises the standard of the veterinary profession in this country to the same level which it has reached in other civilized countries. It provides an army veterinary service of which we may be proud and to which every graduate might aspire with the feeling that he has chosen an honorable and meritorious life work. It perfects our army organization and gives the government animals the same skillful and merciful treatment which has long since been accorded them by other intelligent and humane nations.

This is a part of the great cause for which every true veterinarian has studied and labored, of which he has pondered by day and dreamed at night, for which he has lived and for which he is willing to die. Therefore, let every individual veterinarian say to himself, This is the opportunity of *my* life; *I* will do *personally* everything in my power to secure the success of this effort *in the cause of humanity*, this effort to strengthen

the army of *my country*, this effort to increase the standing and reputation of *my profession*. (Signed) D. E. SALMON.
R. S. HUIDEKOPER,
W. HORACE HOSKINS,
A. W. CLEMENT.

At the close of the chairman's report the Secretary of the committee, Dr. R. S. Huidekoper, gave an exhaustive address bearing upon every phase of the subject, giving a history of the efforts to effect legislation, the difficulties encountered, the successes achieved, and the failures recorded. He pointed out the methods employed by the committee, and the work yet to be done, urging the utmost unity of action, and finishing with a tribute to our friends in Congress who had ever stood by the committee, and who rendered possible the achievements of the two past sessions, and without whose valuable aid but little can be done at the approaching session. At the banquet Dr. Huidekoper added a foot-note by proposing the health of former Secretary Alger, the first Secretary of War to affix his signature and endorsement upon a veterinary bill.

The Committee on Intelligence and Education made a short report through Chairman Baker, who toward its close deprecated the action of a college in good standing in accepting non-graduate students for a term of a month or two with the intention of making them better men, but rendering to each a certificate, which he claimed was framed and made to do duty as a diploma. A lively discussion followed, and it was regretted that there was no representative of the school present to properly explain the matter.

Librarian Williams rendered his annual report, and thought more good could be accomplished by a more general distribution of back reports among the new members.

There were very few State Secretaries present, and many of the absentees did not send in reports. When Illinois was reached, Dr. E. M. Nighbert, of Mount Sterling, came forward with an interesting *résumé* of the year's occurrences. He referred to the workings of the new practice act, showing that 665 had been licensed, of whom 288 only are graduates. In speaking of the prevalence of periodic ophthalmia he endorsed the treatment given by a correspondent of the REVIEW some time since—the injection of dilute iodine into the orbital fossa, which is followed by swelling and a rapid clearing up of the disease.

State Secretary Dunphy rendered a vigorous report for Michigan, in the course of which he roundly scored a veterinary periodical for handicapping the efforts of the members of the profession in their efforts to establish legislation.

When West Virginia was called Dr. Ruhl asked that the Secretary read Dr. Reefer's report, as it contained information of interest, which proved to be the announcement of the organization of a State association, a charter having been secured. There are only ten graduates in the State, but six of these were present at the organization meeting, and a practice act will be asked for at the next session of the Legislature, together with the appointment of a State veterinarian.

Dr. W. L. Williams, of New York, was now called upon, and responded by reading a most interesting and carefully thought-out paper, entitled "Labor, Rest, and Confinement," after which adjournment took place for lunch.

ELECTION OF OFFICERS.

On the reassembling of the convention after luncheon the President announced that the first business on the programme was the election of officers for the ensuing year, and that nominations for President would first be received. Drs. Mitchell, McNeill and Bell were appointed tellers.

Dr. Austin Peters, of Massachusetts, placed in nomination the present occupant of the chair, Dr. Leonard Pearson, and it was seconded by Drs. Hoskins, Huidekoper, and others, claiming that while the one-term rule had been adhered to for some years, they believed the best interests of the association demanded his present retention, principally on account of the status of the Army Bill, with which he was familiar.

Dr. M. H. Reynolds, of Minnesota, placed before the convention the name of Dr. Tait Butler, of Indianapolis, as a tried and true man, who not only deserved the high honor of election to the presidency, but he would add strength to any movement to forward the work of legislation. This nomination was seconded by Drs. Bell, Baker, and others—all paying high tribute to the character and ability of President Pearson, but claiming that the presidency should not be held successively by the same incumbent. There were many men in the membership capable of adorning the position—it was an honor coveted by all—and it should pass on to new hands year after year.

Nominations were now closed, and the tellers began their work, which resulted in the election of Dr. Butler, the vote standing, Butler 37, Pearson, 32.

For Vice-President eight gentlemen were balloted for—the five highest to be declared elected. The result of the balloting was as follows: S. Brenton, 58; W. H. Dalrymple, 51: J. F. Winchester, 45; F. Torrence, 44; M. E. Knowles, 37; E. M. Ranck, 36; R. C. Moore, 33; W. J. Martin, 26. The first five were declared elected, their seniority to be governed by the number of votes received.

When nominations for Secretary were called for every voter in the hall yelled the name of "Stewart," and he was elected by acclamation, his protests being drowned by the shouts of the members.

The same action was taken in the election of a Treasurer, Dr. Lowe being the only nominee, and the Secretary was instructed to cast the ballot of the association for him.

The President thereupon announced that the election of officers had resulted as follows:

President—Tait Butler, of Indianapolis, Indiana.
Vice-Presidents—S. Brenton, of Detroit, Mich.
W. H. Dalrymple, of Baton Rouge, La.
J. F. Winchester, of Lawrence, Mass.
Fred. Torrence, of Manitoba, Can.
M. E. Knowles, of Helena, Mont.
Secretary—S. Stewart, of Kansas City, Kansas.
Treasurer—Wm. Herbert Lowe, of Paterson, N. J.

READING OF PAPERS.

Following the selection of officers the literary programme was continued by the reading of a paper by Dr. Wm. Herbert Lowe, of New Jersey, entitled "The Relation of Veterinary Medicine to the Public Health," which was a forcible and practical presentation of the well established facts of progressive sanitary medicine.

Dr. M. E. Knowles, of Montana, presented the results of his investigations and discoveries upon "The Psoroptes Communis Equi and Bovis in Montana and Northwest Territory," and it proved to be an interesting addition to our literature upon parasitic diseases.

Dr. Tait Butler, of Indiana, next read a carefully compiled paper on "The Relation of Lymphatics to Meat Inspection."

Dr. G. Ed. Leech, of Wisconsin, presented "Notes on the Tuberculin Test in Wisconsin."

Dr. D. E. Salmon, of Washington, D. C., contributed a vigorous presentation of the subject of "Rabies and Hydrophobia," deducing unmistakable evidence not only of the existence but of the prevalence of the disease in many sections of the country, giving a detailed account of its presence and extent in the District of Columbia. He also took occasion to reply to recent articles appearing in the *Journal* discrediting the existence of such a disease, or at least minimizing its prevalence, and was replied to by Dr. Hoskins, the editor, who maintained his contention, saying that the numerous deaths recorded are from nervous collapse from fear. It was apparent that the latter stood almost alone in this opinion.

Dr. J. F. Winchester, of Massachusetts, then read the principal sections of an exhaustive paper on "Antiseptic Therapeutics," based upon a large amount of experimentation, and resulting in some important original deductions.

"Practical Antiseptics" was the subject of an able paper by Dr. G. A. Johnson, of Sioux City, Iowa.

"Veterinary Progress in Michigan," by Dr. Wm. Jopling, was a lucid portrayal of the situation in the Wolverine State, giving the details of the struggles for recognition by the Legislature and the obstacles thrown in our pathway by private individuals with axes to grind.

"Spavin, its Etiology and Treatment," brought the subject up to the hour, and when one has read this thorough presentation of the subject by Dr. W. J. Martin, of Kankakee, Ill., he will have a full idea of all that is best upon this practical and persistent lameness of the horse.

"Snakes, Venoms, and Antidotes," was read only by title and referred to the Publication Committee for insertion in the "Proceedings," as its author, Dr. E. M. Ranck, of Philadelphia, thought that as many practical and more important subjects were awaiting discussion, his contribution would be just as valuable as a part of the archives, and could be read at the leisure of the members. He, however, gave a demonstration of his method of removing the venom from deadly reptiles. He brought forth a box with a glass cover, containing a three-foot rattlesnake, which gave signs of his animate nature by keeping up a vigorous rattling whenever disturbed. By means of a wooden rod to the end of which was attached a leather loop, which could be tightened or loosened at will, the head of the snake was lassooed and he was brought forth amidst strenuous efforts on the part of his snakeship to drive his forked tongue into his captor's hand. Being held firmly in the noose, an ordinary glass was pressed against the palate back of the fangs through which the venom is ejected when the bite is made. Then by pressing against the glands which secrete this poisonous substance, and which are situated just back of the gills, the fluid poured into the glass in a small stream. The doctor likened the apparatus to a hypodermic syringe—the fangs being the needle and the glands the barrel. A few ladies ventured close enough to see the venom dropping into the receptacle, but hastily withdrew as the rattling was heard.

Dr. Austin Peters, of Boston, read a paper on "Obstacles to Enforcing Regulations requiring Tuberculin Test in Interstate Cattle Traffic," based upon his extensive experience as chairman of the Board of Cattle Commissioners of Massachusetts.

Dr. R. R. Dinwiddie, of Arkansas, read a paper on "Experimental Tuberculosis, Human and Bovine, in Domestic Animals," which elicited much interesting and spirited discussion.

The following papers, whose authors where prevented from attending the meeting, were read by title and were referred to the Publication Committee and will be published in the "Proceedings."

"Examining and Licensing of Stallions for Stud Purposes," by Dr. J. I. Gibson, of Iowa.

"Urinalysis in Veterinary Practice," by Dr. Pierre A. Fish, of New York.

"Inoculation against Texas Fever," by Dr. J. W. Connoway, of Missouri.

"Live Stock Vaccines and Serum Therapy," by Dr. W. H. Rushworth, of Illinois.

RESOLUTIONS.

The following resolutions were reported from the Committee on Resolutions, and were unanimously adopted by the Association:

THE ARMY VETERINARIAN.

WHEREAS, The Bill for the establishment of an organized Veterinary Corps in the United States Army which passed the U. S. Senate as "Section 14 of S. 4300," a bill for the efficiency of the Army (known as the Army Reorganization Bill), and is now under consideration by the Military Committee of the House of Representatives, provides for such a service as has been found necessary and exists in the armies of all other civilized countries; and

WHEREAS, Under the system of administration in the U. S. Army an efficient and economical service cannot be had in any other way than that provided for in our bill any more than any business house could employ thirty or fifty workmen effectively without a foreman or superintendent; and

WHEREAS, Any compromise simply of rank, without organization, will not increase the efficiency of the Army, and will set back the proper recognition of the profession a quarter of a century; and

WHEREAS, The eight thousand veterinarians in the United States to-day represent a profession, and are not to be classed on the pay list with teamsters as part of them are in the U. S. Army under the present system; therefore

WE DEMAND an organized Veterinary Corps as provided for in S. 4300 without change or amendment when this bill passes, or as a part of the first Army Bill which does pass in its place when Congress reconvenes, and we will as a body and as individuals use our best and strongest efforts to secure the passage of said Bill.

THANKS TO DETROIT AND MICHIGAN.

WHEREAS, This, our first meeting in this great Convention City of Detroit, has been marked by an attendance in excess in number of any prior meeting, and

WHEREAS, The excellent work done by the Local Committee of Arrangements, the cordial reception of the chief magistrate of the city, the courtesies of the press, the intense interest of the Michigan State Association members, the kindness of the ladies of Detroit and vicinity, have all contributed much to the pleasure and profit of our meeting; therefore, be it

Resolved, That this Association tender their sincere thanks and express their appreciation of the courtesies extended us, and trust that our meeting in this city may contribute much to the welfare and advancement of the profession in Michigan, Canada, and the Central West.

THE AMALGAMATED ASSOCIATIONS OF NEW JERSEY.

WHEREAS, The American Veterinary Medical Association has learned with much satisfaction and pleasure of the recent amalgamation of the three State Societies of New Jersey into the Veterinary Medical Association of New Jersey, and

WHEREAS, In place of factional discord and weakness, we see, as the result of this amalgamation, unity, harmony and strength in the profession throughout that State; therefore, be it

Resolved, That the congratulations of this Association be extended to the profession of the State of New Jersey and to that indefatigable worker and organizer, Dr. Wm. Herbert Lowe, of this Association, through whose labors this much-to-be-desired end has been accomplished.

DAIRY AND MEAT INSPECTION.

WHEREAS, Cities are now recognizing the importance of dairy and meat inspection as essential to the protection of public health, be it

Resolved, That we commend to their consideration the selection of men specially trained for the execution of the work in order that it may be effective. The veterinarian, by his training and his knowledge of animals in health and disease, is preëminently better qualified for these positions than any other class of people. We would also commend the adoption of the rules and regulations of the Bureau of Animal Industry pertaining to meat inspection as far as they are applicable to the conditions.

VETERINARY EDUCATION.

WHEREAS, The ability of the veterinarian to promote the health of the public and of the animals entrusted to his care can be increased only by his more thorough education; therefore, be it

Resolved, That we believe that those entrusted with the management of the veterinary schools of America should put forth every possible effort to lengthen the period of instruction required for graduation, to strengthen and make uniform the curriculum, and to elevate the standard of matriculation examinations.

EXPERIMENT STATIONS.

WHEREAS, We believe that the time has arrived in the history of our profession and in the history of our stock breeding industry when the experiment stations of our various States and territories should undertake the work of research in regard to the physiology and diseases of domestic animals in a more comprehensive manner than has yet been done; therefore, be it

Resolved, That this Association recommend to the governing boards of the various stations that they give this branch of station work more liberal support.

OBITUARY.

WHEREAS, It has pleased Almighty God to remove from our midst our esteemed colleagues,

Drs. M. J. Tewey and Charles A. Mackey, of New York; E. M. Heath, of Connecticut, and Maurice O'Connell, of Massachusetts; therefore, be it

Resolved, That this Association express its sincere regrets and extend to their families our sincere sympathy in their great loss; and, be it further

Resolved, That these resolutions be spread upon the minutes and a copy sent to the bereaved families.

At the conclusion of the reading and discussion of papers the newly elected officers were conducted to the platform and the various offices were formally turned over to them, all of those who were present pledging their earnest endeavors to work for the success of the organization.

President Butler then announced his committee appointments for the ensuing year as follows:

COMMITTEES FOR 1900–1901.

Executive.—Roscoe R. Bell (chairman), Seventh Ave. and Union Street, Brooklyn, N. Y.; D. E. Salmon, Washington, D. C.; G. A. Johnson, Sioux City, Iowa; W. L. Williams, Ithaca, N. Y.; M. H. Reynolds, St. Anthony Park, Minn.; W. Horace Hoskins, Philadelphia, Pa.; C. A. Cary, Auburn, Ala., and the officers *ex officio.*

Finance.—R. C. Moore (chairman), Kansas City, Mo.; Wm. Dougherty, Baltimore, Md.; A. H. Baker, Chicago, Ill.

Publication.—M. H. Reynolds (chairman), St. Anthony Park, Minn.; Roscoe R. Bell, Brooklyn, N. Y.; John J. Repp, Ames, Iowa; J. R. Mitchell, Evansville, Ind.; R. P. Lyman, Hartford, Conn.

Intelligence and Education.—M. E. Knowles (chairman), Helena, Mont. ; T. Bent Cotton, Mt. Vernon, Ohio ; W. J. Hinman, Winnepeg, Manitoba ; Wm. Jopling, Owasso, Mich. ; E. B. Ackerman, Brooklyn, N. Y.

Diseases.—Leonard Pearson (chairman), Philadelphia, Pa. ; Walter Shaw, Dayton, Ohio ; A. T. Peters, Lincoln, Neb. ; Langdon Frothingham, Boston, Mass. ; R. R. Dunwiddie, Fayetteville, Ark.

Army Legislation.—D. E. Salmon (chairman), Washington, D. C. ; Leonard Pearson, Philadelphia, Pa. ; A. W. Clement, Baltimore, Md. ; R. S. Huidekoper, Washington, D. C. ; Wm. Herbert Lowe, Paterson, N. J.

Resolutions.—C. A. Cary (chairman), Auburn, Ala. ; G. W. Dunphy, Quincy, Mich. ; W. H. Dalrymple, Baton Rouge, La. ; G. R. White, Nashville, Tenn.; Austin Peters, Jamaica Plain, Mass.

At the assembling of the convention at 10.30 A. M. Thursday, the room was well filled with members and visitors.

The reports of the Executive Committee at its sessions of Wednesday afternoon and Thursday morning were taken up and its recommendations were acted upon as follows :

The application for membership of Dr. A. W. Hartwig, of Watertown, Wis., was rejected on the ground that his college term had not fulfilled the requirements of the association.

A number of other applications were considered, all being elected and their names will be found among the long list printed elsewhere.

The resignation of Prof. A. Liautard was received, together with a letter embodying his reasons for tendering it. It was accepted, the rules were suspended and he was unanimously elected an honorary member.

The proposed amendment to the constitution and by-laws, which contemplated lowering the requirements for admission into the association, brought forth considerable discussion, and was defeated without a friend to mourn its end.

An appropriation of $250 was voted to the Committee on Army Legislation, and a resolution governing the expenditures of the Resident State Secretaries was passed ; while the Secretary had his salary raised to $300 per year.

THOSE WHO WERE THERE.

The following list of those in attendance is probably not complete, but represents those who registered at the entrance to the hall. For instance, we met a number of gentlemen whose names do not appear in the official list.

Members.—Francis Abele, Quincy, Mass.; E. B. Ackerman, Brooklyn, N. Y.; F. E. Anderson, Findlay, Ohio; A. H. Baker, Chicago, Ill.; E. E. Beckett, Boston, Mass.; Tait Butler, Indianapolis, Ind.; Roscoe R. Bell, Brooklyn, N. Y.; A. W. Bitting, Lafayette, Ind.; Eugene Burget, Cleveland, Ohio; J. C. Burneson, Wooster, Ohio; S. Brenton, Detroit, Mich.; Geo. W. Bell, Kingston, Ont.; J. H. Blattenburg, Lima, Ohio; Albert E. Cunningham, Cleveland, Ohio; A. W. Clement, Baltimore, Md.; D. W. Curtis, Detroit, Mich.; H. P. Clute, Marinette, Wis.; W. E. Clemons, Greenville, Ohio; A. S. Cooley, Cleveland, Ohio; W. S. Cass, St. Louis, Mo.; T. Bent Cotton, Mt. Vernon, Ohio; R. A. Craig, Lafayette, Ind.; W. H. Dodge, Leominster, Mass.; D. A. Davison, Princeton, Ind.; G. W. Dunphy, Quincy, Mich.; R. R. Dinwiddie, Fayetteville, Ark.; Wm. Dougherty, Baltimore, Md.; J. T. Elliott, Detroit, Mich.; H. Fulstow, Norwalk, Ohio; Langdon Frothingham, Boston, Mass.; W. C. Fair, Cleveland, Ohio; John W. Graves, Hamilton, Ont.; L. K. Green, Detroit, Mich.; H. M. Gohn, St. Johns, Mich.; J. Hawkins, Detroit, Mich.; W. Horace Hoskins, Philadelphia, Pa.; R. S. Huidekoper, Washington, D. C.; W. F. Heyde, St. Louis, Mo.; W. A. Heck, Moquekota, Ia.; W. S. Hamilton, Chelsea, Mich.; G. A. Johnson, Sioux City, Ia.; Wm. Jopling, Owosso, Mich.; J. W. Jameson, Paris, Ky.; Wm. Henry Kelly, Albany, N. Y.; M. E. Knowles, Helena, Mont.; J. Stewart Lacock, Alleghany, Pa.; Wm. Herbert Lowe, Paterson, N. J.; G. Ed. Leech, Milwaukee, Wis.; Wm. McEachran, Windsor, Ont.; C. A. Miller, Louisville, Ky.; R. J. Morrison, Detroit, Mich.; Frank C. McCurdy, St. Joseph, Mo.; J. R. Mitchell, Evansville, Ind.; R. C. Moore, Kansas City, Mo.; W. J. Martin, Kankakee, Ill.; Wm. F. Myers, Fort Wayne, Ind.; J. C. McNeil, Pittsburg, Pa.; E. M. Nighbert, Mt. Sterling, Ill.; J. D. Nighbert, Pittsfield, Ill.; C. E. Porter, New Castle, Pa.; Leonard Pearson, Philadelphia, Pa.; J. M. Phillips, St. Louis, Mo.; Austin Peters, Boston, Mass.; Wm. H. Rushworth, Chicago, Ill.; Wm. H. Richards, Emporia, Kansas; Jno. J. Repp, Ames, Iowa; M. H. Reynolds, St. Anthony Park, Minn.; Frederick P. Ruhl, Fairmont, W. Va.; James Robertson, Chicago, Ill.; E. M. Ranck, Philadelphia, Pa.; L. N. Reefer, Wheeling, W. Va.; James L. Robertson, New York City; V. Schaefer, Tekama, Neb.; Edgar H. Shepard, Cleveland, Ohio; S. Stewart, Kansas City, Mo.; A. J. Savage, Colorado Springs, Col.; Walter Shaw, Dayton, Ohio; D. E. Salmon, Washington, D. C.; R. V. Smith, Frederick City, Md.; Charles Schmidt, Dodgeville, Wis.; S. S. Snyder, Cedarburg, Wis.; N. I. Stringer, Eureka, Ill.; H. E. Titus, Lafayette, Md.; W. J. Tomlinson, Williamsport, Pa.; Fred. Torrence, Winnipeg, Manitoba; W. L. Williams, Ithaca, N. Y.; J. F. Winchester, Lawrence, Mass.; A. W. Wier, Greenville, Pa.; Geo. R. White, Nashville, Tenn.; A. Youngberg, Lake Park, Minn; D. P. Yonkerman, Kalamazoo, Mich. (90)

Visiting Veterinarians.—W. J. Armour, Goshen, Ind.; Judson Black, Richmond, Mich.; — Baldock, Birmingham, Mich.; U. S. G. Beaver, Klutztown, Pa.; F. M. Blatchford, Brighton, Mich.; W. S. Birben, Kingston, Pa.; J. W. Brodie, Pontiac, Mich.; G. W. Buckner, Bluffton, Ind.; S. E. Bouller, Niagara Falls, Ont.; H. L. Bollinger, Plainwell, Mich.; C. E. Brownback, Penn, Ind.; L. A. Brown, Aylmer, Ont.; H. B. Baker, Detroit, Mich.; H. B. Bascer, Lansing, Mich.; J. B. Caughey, Columbus, O.; H. T. Carpenter, Ada, O.; J. C. Callender, Parkersburg, W. Va.; S. R. Craver, Youngstown, O.; A. Cornell, Elkton, Mich.; G. H. Carter, Saginaw, Mich.; D. Cummings, Port Huron, Mich.; A. Campbell, Jackson, Mich.; E. H. Callander, Zanesville, O.; M. R. Carr, Kirkton, Ont.; W. F. Derr, Wooster, O.; J. A. Dell, Ann Arbor, Ind.; J. F. Deadman, Sault Ste. Marie, Mich.; D. S. DeWolf, Hart, Mich.; B. A. Dillahunt, Springfield, Ohio; C. F. Dawson, Detroit, Mich.; W. H. Kerr, Mansfield, Ohio; T. G. Kuff, St. Louis, Mich.; H. Emery, Pittsburgh, Pa.; E. W. Emery, Greenfield, Ohio; Chas. E. Edwards, St. Thomas, Ont.; Wm. Elliott, Hickory Corner, Mich.; J. E. Foster, Coshocton, Ohio; J. D. Fair, Berlin, Ohio; Geo. Fitchett, Mich.; Thomas Farmer, Grand Bloc, Mich.; E. T. Frank, Warren, Minn.; B. M. Freed, Sharon, Pa.; S. N. Fitch, Auburn, Ind.; — Frederick, Columbus, Ohio; W. A. Giffin, Detroit, Mich.; F. G. Gilbank, Detroit, Mich.; L. A. Griener, Indianapolis, Ind.; W. H. Gribble, Washington C. H., Ohio; W. R. Granger, Plymouth, Mich.; J. S. Grant, Portland, Mich.; H. M. Gillian, Mason City, Iowa; L. D. Gilson, Adrian, Mich.; C. S. Hess, Wabash, Ind.; R. C. Hill, West Alexandria, Ohio; W. C. Holden, Delphos, Ohio; A. H. Hartwig, Watertown, Wis.; C. H. Howard, Calumet, Mich.; B. E. Hunt, Alma, Mich.; John Hooker, New Baltimore, Mich.; Jas. J. Joy, Detroit, Mich.; Thomas E. Jones, Newark, Ohio; R. H. Kestell, Ypsilanti, Mich.; J. W. Klotz, Noblesville, Ind.; W. E. Krenler, Wadsworth, Ohio; Alex. McGregor, Rockport, Ohio; A. McKercher, Lansing, Mich.; W. A. Meredith, Corry, Pa.; Thomas Meredith, Jameston, N. Y.; S. A. Myers, Wilmington, Ohio; Wallace McQueen, Oxford, Mich.; F. W. Menhennett, Ishpeming, Mich.; F. McCoy, Chicago, Ill.; R. W. McCally, New York City; A. E. Metzger, Clyde, Ohio; Geo. C. Moody, Mason, Mich.; W. O. McHugh, Toledo, Ohio; W. R. McMurty, Janesville, Mich.; E. D. McQueen, Lowell, Mich.; R. W. McDonald, Flint, Mich.; —— McClain, Jeromeville, Ohio; J. T. Nattress, Delbran, Ill.; Chas. W. Nye, Coopersville, Ohio; M. C. Newburg, Hanover, Mich.; John V. Newton, Toledo, Ohio; C. L. Osgood, Samaria, Mich.; H. F. Palmer, Detroit, Mich.; A. J. Payne, Cincinnati, Ohio; S. A. Pinte, Lexington, Ky.; A. Roberts, Waukesha, Wis.; J. C. Rodger, Anderson, Ind.; M. Rectenwald, Pittsburgh, Pa.; Wm. Rose, Grand Rapids, Mich.; C. Rowland Simpson, Somerville, Mass.; C. C. Stevens, Yale, Mich.; C. S. Shier, Detroit, Mich.; W. M. Simpson, Malden, Mass.; H. S. Smith, Albion, Mich.; C. N. Stowe, Saginaw, Mich.; R. N. Steele, Chicago, Ill.; D. King Smith, Toronto, Ont.; S. S. Treadwell, Englewood, N. J.; W. J. Torrence, Cleveland, Ohio; W. H. Turner, North Amherst, Ohio; J. H. Tennent, London, Ont.; —— Farmer, Ashtabula, Ohio; A. G. Tegg, Rochester, N. Y.; Thos. Thacke, Renfrew, Ont.; John Vhay, Detroit, Mich.; Z. Veldhius, Tremont, Mich.; V. C. Vaughan, Ann Arbor, Mich.; F. C. Wells, Warren, Mich.; J. C. Whitney, Hillsdale, Mich.; W. E. Wight, Allegheny, Pa.; Geo. Waddle, Hastings, Mich.; W. J. Williams, Franklin, Ind.; Wm. M. Wilson, Hartstown, Pa.; Geo. A. Waterman, Lansing, Mich.; J. E. Ward, Perry, Mich.: P. W. Woolly, Lapeer, Mich.; I. A. Wynn, Kenton, Mich.; C. A. Waldron, Tecumseh, Mich.; R. W. Whitehead, Youngstown, Ohio; H. C. Wann, Charlovoir, Minn. (124)

Lady Visitors.—Mrs. E. B. Ackerman, Brooklyn, N. Y.; Miss Lillian Brenton, Detroit, Mich.; Mesdames S. Brenton, Detroit, Mich.; W. S. Brown, Pennsylvania; A. H. Baker, Chicago, Ill.; J. C. Burneson, Wooster, Ohio; Geo. W. Bell, Kingston; Cheesbrough, Detroit, Mich.; Cowing, Detroit, Mich.; H. T. Carpenter, Ada, Ohio; D. W. Curtiss, Cadillac, Mich.; F. A. Cooley, Cleveland, Ohio; A. Campbell, Jackson, Mich.; J. A. Dell, Ann Arbor, Mich.; W. F. Derr, Wooster, Ohio; D. A. Davison, Princeton, Ind.; G. W. Durphy, Quincy, Mich.; H. Emery, Pittsburgh, Pa.; J. D. Fair, Berlin, Ohio; W. A. Giffen, Detroit, Mich.; Miss Ella Gribble, Washington C. H., Ohio; Mesdames Guerney, Detroit, Mich.; W. A. Heck, Iowa; W. H. Hoskins, Philadelphia, Pa.; A. H. Hartwig, Watertown, Wis.; T. B. Hillock, Columbus, Ohio; G. A. Johnson, Sioux

City, Ia.; W. H. Kelly, Albany, N. Y.; G. E. Leech, Milwaukee, Wis.; Miss J. Meredith, Jamestown, N. Y.; Mesdames Wm. McEachran, Windsor, Ont.; J. R. Mitchell, Evansville, Ind.; E. D. McQueen, Lowell, Mich.; A. E. Metzger, Clyde, Ohio; A. Roberts, Waukesha, Wis.; F. P. Ruhl, Fairmont, W. Va.; E. H. Shepard, Cleveland, Ohio; S. Stewart, Kansas City, Mo.; C. R. Simpson, Summerville, Mass.; W. H. Turner, North Amherst, Ohio; J. H. Tennent, London, Ont.; J. C. Whitney, Hillsdale, Mich.; R. A. Walster, West Eaton, Mass.; W. J. Williams, Franklin, Ind.; W. E. Wight, Allegheny, Pa.; A. W. Weir, Greenville, Pa.; John Vhay, Detroit, Mich. (48)

Others Present.—W. W. Dixon, New York City; Alex. Eger, Chicago, Ill.; L. D. Watkins, Manchester, Mich.; A. H. Zenner, Detroit, Mich. (4)

A. V. M. A. NOTES.

Fifty-eight new members emphasize the growing character of the association.

Less than one dozen were dropped from the roll through delinquency.

There were numerous displays of instruments at the headquarters and at the clinics.

Never were guests more royally entertained than were the veterinarians by the Michiganders.

Members who have attended meetings for more than twenty years, say that Detroit's convention was—all in all—the best yet held.

Those who were expecting a mortal combat between two prominent members were doomed to disappointment. It looked as though one was afraid and the other didn't dare.

An innovation occurred at the Russell House. The *mênu* card was embellished by a good photo of some officer of the association, changing the face at each meal.

Dr. Lowe's paper was taken up by the Detroit newspapers and favorably commented upon, urging its applicability to the conditions of the milk supply of Detroit.

Dr. Eugene Burget, formerly the business partner of James L. Robertson, of New York, is living upon his farm near Cleveland, Ohio. Both he and Dr. R. were in attendance, and neither missed a trick.

Visitors to the clinics were enthusiastic in commenting upon Dr. Brenton's sanitarium, in West Alexandrine Avenue, in the rear of his beautiful residence. With such perfect facilities his practice must be both profitable and pleasurable.

A composite picture was made of the *personnel* of the convention upon a raised platform alongside the hotel. Two ladies who were omitted from the group threatened to break the negative, so that a new sitting would be necessary.

Secretary Stewart had a $100 boost to his salary. With such incessant and conscientious work as he bestows upon the association's affairs, $500 would be nearer an equitable compensation; and yet some secretaries would be dear at $100.

The great establishment of Parke, Davis & Co., was a revelation to the visitors. The workings of the vast laboratory riveted attention, and days could have been profitably spent in examining the processes instead of a few hours.

Mr. W. W. Dixon, representing the firm of E. R. Squibb & Son, of Brooklyn and New York, was actively working in the interests of acetic acid fluid extracts and compound alum powder.

The Army Committee captured a Congressman at the hotel on the last day of the session, brought him to the platform, where a speech was delivered pledging his best efforts to promote the pending bill. He was the Hon. Mr. Wicks, of Michigan.

The geographical distribution of the Vice-Presidents could not have been better arranged if they had been purposely selected from the various sections of the country—one from Michigan, one from Louisiana, one from Massachusetts, another from Montana, and the fifth from Canada.

Toastmaster Salmon introduced speaker Hoskins to reply to the subject of "The Veterinarian in Politics" by administering a witty "roast" to the late candidate for Mayor of Philadelphia. The latter, however, replied so forcefully that the house was brought down in a storm of laughter and applause.

Dr. D. K. Smith, of the Ontario Veterinary College, displayed a dozen colored photographs of frozen anatomy; that is, the cadaver was placed in the open air and allowed to freeze, when longitudinal and cross sections were made at various points and photographs taken, afterwards being colored and labelled—making an interesting and instructive series.

Treasurer Lowe introduced a motion to have himself placed under $2000 bonds. He did not have a fear that he would abscond, but thought the association should be protected; that if a new treasurer were to be elected it would then be indelicate to make such a proposition; but it could be properly done at this time, he being the author of the movement and the individual affected.

Drs. Salmon and Bell left Detroit early Friday morning and missed every train with which they were to connect, finally arriving in Washington in condition for the laundry and hospital. Dr. E. B. Ackerman and wife, of Brooklyn, N. Y., returned via Buffalo, Niagara Falls, Toronto and Ithaca, where they attended the New York State meeting.

Dr. M. E. Knowles, of Montana, was early on hand and insistent that the association should come to Helena in 1902, promising a Yellowstone Park trip, an excursion to Bitter Root Stock Farm, and other delightful diversions. His rendition of "Mr. Dooley" at the banquet was so true a dialect that there is danger of losing him to the stage.

An enterprising disinfectant agent gave to each veterinarian what appeared to be a half-pint sample bottle of his drug, enclosed in a neat box, with a *fac-simile* of his commercial label on each bottle. Those who discarded their samples regretted their hasty action when they discovered that the fluid was really Hancock whiskey, guaranteed by a rear label to be ten years old and the best.

There was only one class of arrangements which did not work satisfactorily, and that was the clinics. The members were hungry for them, and the committee had worked faithfully to have their arrangements perfect, but events conspired to defeat their plans. The REVIEW will take up this subject and discuss it a little later with the object of having them more perfect another year.

When the printer of the *mênu* of the banquet dubbed the Hon. L. R. Watkins a "Doctor," the latter felicitously referred to the circumstance by saying: "When I was but a young man I had the ambition to some day become the Governor of the Wolverine State; later I even aspired to the Presidency of this great nation; but never, in my wildest dreams, did I ever hope to become a veterinary surgeon. That you have seen fit to place upon me that truly distinguished title I accept it as the acme of human ambition."

In summing up the status of the veterinary colleges of America, Chairman Baker, of the Committee on Intelligence and Education, failed to include the school at Nashville, which so incensed Dr. G. R. White, of that city, as to cause him to rise to his feet repeatedly in defense of his section. He said that there were no veterinarians in the faculty and he was not sure that any instructions were given, but it was there, and he did not want it ignored.

The Michigan Association entertained the visitors, including the ladies, with a delightful steamer ride up the St. Claire flats, where a fish-and-frog supper was served. It was a happy event, permitting of charming social diversions, the enjoyment of entrancing scenery and a luscious repast, the guests returning to the city at 8.30 P.M., feeling that their hosts had been generous and untiring in their efforts, and had succeeded most admirably.

An exhibition of rapidity and dexterity was given by Dr. W. J. Torrence, of Columbus, Ohio, at Thursday's clinic. With a simple scalpel and a butcher's skewer he performed high plantar neurectomy upon a fifteen-hand gelding in one minute and fifty-eight seconds (1:58), which included the turning of the animal at different angles so that all might see the procedure. The inside operation was completed in 30 seconds. The incision was three-eighths of an inch long, and one inch of the nerve was excised.

The banquet was a perfect success. Three long tables and a cross table, artistically decorated with beautiful flowers, with flags and bunting arranged in artistic festoons, made an ideal banquet hall. More guests sat down to this splendid repast than on any similar occasion, and there was unalloyed enjoyment throughout the evening. The music was of the popular order, and elicited continuous applause—"The Holy City" being rendered three times in response to vigorous *encores*. When the feast was completed the felicitous toastmaster, Dr. Salmon, introduced his speakers in the most entertaining manner, and the responses were in every case well delivered and happy in conception. The following is a list of the toasts and their sponsors: "State Sanitary Work," Dr. H. B. Baker; "Our Relation with Agriculturists," Hon. L. D. Watkins; "Army Legislation," Dr. R. S. Huidekoper; "Our Local Committee," Dr. G. W. Dunphy; "Our Officers," Dr. S. Stewart; "Our Sphere in Politics," Dr. W. Horace Hoskins; "Our Guests," Dr. Leonard Pearson; "Our Canadian Confrères," Dr. D. K. Smith; "State Veterinary Sanitary Work," Dr. M. H. Reynolds; "Our Profession," Dr. James L. Robertson; "Amalgamated Associations of New Jersey," Dr. Wm. Herbert Lowe; "Mr. Dooley," Dr. M. E. Knowles.

THE Veterinarian who does not read the REVIEW is to be pitied.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The tenth annual meeting of this society convened in the large lecture amphitheatre of the New York State Veterinary College, at Ithaca, on Wednesday, Sept. 12, at 11 A. M., President Roscoe R. Bell in the chair and Secretary Claude D. Morris recording, with about one hundred members of the profession and a goodly number of ladies in attendance. The President called the meeting to order, and introduced the Hon. J. G. Schurman, President of Cornell University, who welcomed the convention to Cornell and Ithaca in a splendid address, in which he paid a high tribute to modern veterinary medicine and the character of the men engaged in its practice and teaching. Everyone felt the influence of his encouraging words, which were received with prolonged applause.

President Bell responded to the welcoming address, assuring Mr. Schurman and the Ithacans that their warm words were appreciated and returned with great heartiness.

At the conclusion of these formal ceremonies,

THE PRESIDENT'S ANNUAL ADDRESS

was then read, as follows:

"We have much cause for congratulation that the whole-souled invitation of the Ithacans to hold our meeting here this year was accepted, for never has our association met amidst such magnificent surroundings, with such bewitching and picturesque scenery, or with more generous hospitality. It is a great privilege to visit this magnificent seat of learning, which stands as an everlasting testimonial to civilization and the glory of this commonwealth. To wander over the great green campus, through the halls and amphitheatres of the university, and to ponder upon the vast facilities for instruction enjoyed by the young men of the generation, is a revelation to most of us and a sign of hope that those who are to follow us will have greater opportunities to solve the problems of science than were vouchsafed to us and to our day. But we will be particularly interested in the School of Veterinary Medicine, for it has taken a high type of education for its standard, and the members of its faculty are men of national reputation, and I am glad to say that we have the honor of numbering the most of them as among our most valuable and active members. Those of the faculty who are ineligible through lack of a strictly veterinary degree have made themselves very welcome through their works in comparative medicine, and at our last meeting we were pleased to honor them and ourselves by placing their names upon our roll of honorary membership.

"Under such brilliant auspices as these the tenth annual meeting of this society is inaugurated, and the doors are thrown open for the transaction of all business that may properly come before it. I trust it may be harmonious and one long to be remembered for the good it shall accomplish for veterinary science and in the awakening of an interest in our society that shall mark the birth of a new era in the history of associational work in the Empire State.

"When at our last annual meeting you conferred upon me the very high honor of making me your President for two years I at once felt that a great responsibility went with that election, and time has simply intensified that conviction. In consequence, I have watched with jealous eyes events that have been transpiring throughout the veterinary world, and especially have I endeavored to study the problems that have been presented in the nation and state, that I might at this time bring before this convention the facts and impressions that I have gathered, so that we might look upon the situation in a calm and careful manner, and by intelligent consideration gain something that will inure to the advantage and advancement of our calling.

"In the first place, as a result of stimulated observation, I bring you tidings of general professional prosperity throughout the country. The commercial and financial depression which held the nation in a firm grasp for the last seven years of the nineteenth century, dragging all industrial interests down with it, has given place to an era of good times, when all businesses are active, with capital seeking and finding profitable employment, anxiety being dispelled, and a feeling of confidence everywhere being established. As a consequence, purse strings are loosened, the people are beginning to seek pleasures and pastimes, and as a matter of history and of fact the horse enters more keenly into the pleasures and sports of people than any other single object. It appears now, after tantalizing men with such illusive, expensive, and unsatisfactory side-shows as auto, loco, moto, and other fashions of cycles, that they approach the horse with a stronger affection and renewed zest, for he is bringing more solid dollars in the open market than ever was recorded in the history of the world. When yearlings fetch $50,000 and adults $187,000 it may fairly be assumed that his decadence has not yet really begun, and if he is to exist only as an adornment of the museums of natural history, as has been claimed by a few enthusiastic automobile newspapers, he will form a rather expensive specimen. The higher he goes in value the more profitable becomes the vocation of the veterinary surgeon; so that we can afford to watch his upward bounds with complete complacency. When horses were selling for from $50 to $75 it was a questionable proposition whether more than two or three visits could be made upon such a patient at one disability; but when the same horse advances to $150 or $200, his owner will be glad to employ skilled assistance in order to have his valuable property returned to a condition of usefulness. This is but one element conspiring to the betterment of veterinary science. Better men have inspired greater confidence in the people; better results from medical treatment have encouraged them to more frequently seek advice and help from the veterinarian, and a higher education along humanitarian lines has taught people to more seriously regard the dumb animals dependent upon them when sick or disabled. All of these circumstances result not only in financial profit to the veterinarian, but give to his calling honor and the respect of his fellow men.

"The State of New York has a greater veterinary population than any other. It is the pioneer in veterinary education and legislation, and there is no good reason why it should not continue to be the leader in every advancing movement in this country.

"There is absolutely but one channel through which reforms can be accomplished, and our interests safeguarded, and that is the veterinary association. The literature of a profession may point out danger signals and opportunities for advancement, but it requires an association to take hold and do the work. One man will see an abuse and rail at it, possibly make a spasmodic effort to correct it; but he has neither the time nor the ability to persevere long enough to accomplish any real good. A better example could not be found of the truth of this than the history of the efforts to effect legislation to place the army veterinarian upon a higher plane. Concerted attacks all over the country supporting the active exertions of the Committee on Army Legislation of the American Veterinary Medical Association have year after year gained a little until the last session of Congress all but gave us the coveted prize. Beginning with the opening of the next session the thread will be taken up just where it was left off—the same activity of the committee, the same pressure of individual members upon their representatives in Congress—and it will be a miracle if we do not succeed in our long struggle.

"So it is in this State. A bill is introduced in the Assembly, which if it became a law, would destroy the legal foundation of our profession. Our watchful Judiciary Committee, ever on the alert for just such efforts, sounds the alarm, which is taken up by the active members of the society throughout the State and such an avalanche of protests pours into the committee having the bill in charge that it never emerges from the committee room. The whole profession of the State is thus protected and benefitted by the society of which you are members. How could adequate protection from iniquitous legislation be secured by any other means? How can veterinarians withhold their support from an organization doing such work in their behalf year after year?

"It is illustrative of the power for good which can be exerted by such an association. It is estimated by such a careful statistician as our worthy Secretary that the State of New York contains 800 graduate veterinarians and 1500 non-graduates. As only the former are eligible to membership in this society, it leaves us with a possible membership of 800. Now, when we contemplate the great influence wielded by this association, and the large amount of work performed by it in its short history, with less than 100 members, only a small proportion of which are really active, it may be imagined what grand good could be done had we upon our rolls the number that should be there—all working as one harmonious band for the best interests of our profession and our commonwealth—the pursuit of knowledge, the elevation of our profession, the preservation of the health and wealth of the State by the intelligent guardianship of its herds and flocks against the ravages of contagious diseases, the protection of the legitimate practitioners and the public against unqualified competition, and the cementing of friendships by pleasant social intercourse.

"This society was organized at Rochester on January 15, 1890, with 27 members. The following year we were incorporated by act of the legislature, since which date we have elected 104 to membership, making a total of 131. Of this number 28 have been suspended for delinquency of dues, 3 have been dropped for breach of the Code of Ethics, 4 have resigned, and 5 have died—leaving upon our rolls to-day 91 members. Nine annual meetings have been held. In 1890 at Rochester (the organization meeting), 1891, 1892, 1893, at Syracuse, 1894 at Albany, 1895 at New York City, 1896 at Buffalo, 1897 at Syracuse, 1898 and 1899 at New York City, and this year at Ithaca. Up to 1894 the meetings were held in January, since which time they have occurred in September.

"Placed in possession of this brief history of the society, furnished through the courtesy of Secretary Morris, I submit, gentlemen, that we have not been so strong numerically as we should have been, and we have not always been as active as a great State association could be, while that harmonious spirit essential to the accomplishment of all great undertakings has not always characterized our deliberations and actions, still the influence wielded and the work done by this society has been stupendous when considered in the light of our short history and the obstacles which have been contended with. The placing of the educational standard upon the high plane which it now occupies was the work of this society, and, while the enforcement of the letter of the law was a grievous wrong to certain unalienable rights of private corporations, the Regents of the University, when brought face to face with the fact that the standard was prohibitive of progress, so modified them as to leave the Empire State the foremost in the land in higher education, but placing its schools in a position where they could secure students of the higher order. As a consequence and as a part of this law, the Examining Board was established, and the high privilege is granted this society (and through it the legitimate members of the profession of the State) of naming the gentlemen who shall constitute that board, thus lifting the licensing of practitioners clear of all political influences, making the board professionally pure and above suspicion. The requirements for the licensing examination are of so high an order that only graduates of schools maintaining a standard equal to New York can present themselves. The harmless amendment recently allowed to pass the Legislature does not affect the integrity of our law, because the candidates which it is intended to shield must have the unanimous approval of the board.

"If nothing more than this had been accomplished by this society it has a thousand times justified its existence; but it has ever sought by its committees and by resolution to further professional and allied interests in a hundred ways, and it is really amazing how successful it has been. We are not risking our reputations as prophets when we say that with increased membership, stimulated interest and unity of purpose, great benefits can be caused to flow to us and to the cause which we represent.

"I have in mind many fields that might be profitably cultivated, but I have consumed more of the valuable time of this meeting than I perhaps should have done. If I am fortunate enough to live throughout the coming year, and escape impeachment for incompetency, I shall be glad to absorb more of your time at the next meeting upon this important subject."

The reading of the minutes and the calling of the roll were on motion dispensed with, and the Secretary was called upon for his report, which was a splendid presentation of the condition of veterinary medicine of the country and the affairs of the Association.

Under the head of new and miscellaneous business, the proposed amendment to the constitution admitting to membership workers in the field of comparative medicine—confining its application to those who have contributed original papers, or have done experimental work in this branch of medicine—was taken up and passed unanimously.

Chairman Wm. Henry Kelly, of the Committee on Legislation, made a verbal report, giving the history of the efforts made during the last session of the legislature to pass bills to break the laws governing the practice of veterinary medicine in this State and those for the benefit of individuals. He also gave the alarm that more powerful and persistent attack would be made at the coming session, and he made a plea for more united and prompt action on the part of members of the profession of the State to kill such measures. He thought all veterinary surgeons should act in concert, whether members of the society or not; and advised that the committee send appeals to all veterinarians in the State when such an emergency arises. It was thought by some members that it would be a good plan to have the County Secretaries revived, and have the committee send directly to them, and let each Secretary communicate with the profession of his district. Upon motion, the President was directed to appoint a Secretary in every county of the State where there is a representative of this society.

A larger number of applications for membership were presented than at any previous meeting, no less than fifteen being reported favorably upon by the Board of Censors, all of whom were elected to membership. The following is the list of

NEW MEMBERS.

Chas. B. Potter, D. V. M. (N. Y. S. V. C., '99), Elmira. Vouchers, W. L. Williams and James Law.

J. W. Corrigan, D. V. M. (N. Y. S. V. C., 1900), Batavia. Vouchers, Wm. Henry Kelly and James Law.

W. J. Hallock, V. S. (O. V. C., '92), Auburn. Vouchers, A. W. Baker and James Law.

Thomas G. Sherwood, M. R. C. V. S. (London, 1883), New York City. Vouchers, Roscoe R. Bell and Samuel Atchison.

Chas. H. Jewell, D. V. M. (N. Y. S. V. C., 1900), Dunkirk. Vouchers, James Law and Roscoe R. Bell.

Albert B. Kelly, D. V. M. (N. Y. S. V. C., '98), Johnstown. Vouchers, Wm. Henry Kelly and F. L. Kilborne.

Thomas J. Herr, D. V. S. (A. V. C., '79), New York City. Vouchers, Roscoe R. Bell and C. D. Morris.

Pierre A. Fish, D. V. M. (N. Y. S. V. C., '99), Ithaca. Vouchers, James Law and F. L. Kilborne.

L. L. Bishop, V. S. (O. V. C., '94), Delavan. Vouchers, Romanza Perkins and E. M. Casey.

Garry T. Stone, D. V. M. (N. Y. S. V. C., 1900), Binghamton. Vouchers, W. L. Williams and James Law.

H. D. Stebbins, V. S. (O. V. C., '95), West Winfield. Vouchers, Wm. Henry Kelly and J. M. Currie.

Carl W. Gay, D. V. M. (N. Y. S. V. C., '99), Ithaca. Vouchers, James Law and Roscoe R. Bell.

C. F. Vorhis, V. S. (O. V. C., '95), Owego. Vouchers, James Law and Wm. Henry Kelly.

J. C. Stevens, V. S. (O. V. C., '94), Cortland. Vouchers, James Law and C. H. Jewell.

Alexander Findley, V. S. (O. V. C., '91), Camden. Vouchers, Wilson Huff and J. M. Currie.

THE LITERARY PROGRAMME.

The first contribution to this section of the programme was that of Dr. Claude D. Morris, who gave a didactic lecture upon the subject of "A Practical Shoe for the Utility Horse, as a Short Oral Clinic," wherein was depicted the benefits to be derived from a substance other than iron and calks in preventing slipping and lameness.

Next Dr. E. B. Ackerman, of Kings, brought forward the subject of "Rheumatism and Osteoporosis," the speaker claiming a direct connection between the two diseases, believing that in the condition of the subject the alkaline salts of the system were used up to neutralize the presence of lactic acid, and in consequence osteoporosis would follow from the diminished quantity of the normal alkaline salts of the blood. Much discussion was excited by the introduction of the subject, and, while all were willing to admit a certain similarity of symptoms, they could not accept *in toto* the conclusions of the essayist.

"Swine Diseases in Clinton County," proved an exceptionally interesting paper, and the history of the outbreak, with very intelligent investigation, made all feel when the story was completed that they were better acquainted with the disease than ever before. Dr. J. A. McCrank, of Plattsburg, who prepared the paper, is to be congratulated upon this effort, and it is to be hoped that he will utilize his talents as a writer and observer of veterinary topics.

"Indigestion; Its Right and Wrong Treatment," was the subject of Dr. W. B. Switzer's contribution, and consisted largely in the report of an unusual case where profuse hæmorrhage followed the withdrawal of a probang, introduced for the purpose of removing gas from the stomach, being certain that no mechanical injury was inflicted by the instrument. This patient recovered, although there seemed no possibility of such a termination. This brought out an interesting discussion as to the use of probangs and rubber hose, Dr. Kelly detailing the facts in regard to his employment of the tube. It had been brought to his attention at the Omaha meeting, and he had employed it in many cases with gratifying results, only that his informant had inserted the hose through the nostril, and he had done so through the mouth. Prof. Law warned the members as to the danger of the latter method, as the patient would likely bite the hose in two and swallow the distal end. Others indulged in the discussion, and made a most interesting subject of it.

Dr. Romanza Perkins, of Warsaw, reported two cases of paralysis of the throat, giving the symptoms in detail. Scarcely a practitioner was present who could not point to many such cases occurring in his practice—all believing that they belonged to the class of meningitises, and many tracing their cause to improperly cured vegetation.

"Clinical and Histological Observations on a Case of so-called Hermaphroditism in a Horse" was the title of a paper the joint production of Profs. W. L. Williams and S. H. Gage, and proved of much interest to the convention.

Prof. Pierre A. Fish gave an entertaining discourse entitled "Observations on the Presence of Phosphates in the Urine of the Horse," exhibiting his methods of detecting them, and some improved apparatus used in the analysis.

ILLEGAL PRACTICING IN NEW YORK.

Vice-President Berns occupied the chair while President Bell brought forward the subject of the prosecution of those who are practicing veterinary medicine in New York State without a legal right to do so. The substance of his remarks were the same as those contained in an editorial in the September REVIEW, showing that on account of the inactivity of the profession in hunting down offenders, the latter were becoming emboldened and were getting to be so numerous as to be menacing. He thought the society should take steps to begin the systematic prosecution of such cases, believing that a few vigorous examples would cause most of them to fold up their tents and seek more congenial localities. The method of proceeding seemed to be the only question. A number of cases were reported of either convictions or the offenders had left the locality when the alarm was sounded. Considerable discussion upon all phases of the subject was indulged in, the result being that Dr. Williams moved that the Executive Committee should proceed to prosecute cases of flagrant violations in the manner which seemed to it the best, which was seconded and carried.

THE SURGICAL CLINICS.

The distinctive feature of the meeting at Ithaca, however, was the clinical demonstrations, the facilities for which were well-nigh perfect. The arrangements for the clinics were in charge of Prof. Williams, and it was the loudly expressed opinion of every one that they far surpassed anything of the kind ever held in this country. The arrangements moved with the precision of clock-work, and not a minute of time was lost. Whenever an hour, or even a half-hour could be spared from other parts of the programme, it would be announced that a subject was ready for operation, and away the members would fly to the clinic room. Even when the members and visitors were being entertained by the faculty on Wednesday night—after the stereopticon and microscopical sections had been completed, and before refreshments were served—the indefatigable Williams had a subject on the table, upon which, under complete chloroform anæsthesia, median neurectomy, tarsal tenotomy, the new double neurectomy for spavin, and plantar neurectomy were performed by various operators. The assertion will never again be made by those who attended this meeting that surgical clinics should be omitted from the programme of a veterinary association meeting, as everybody with whom the REVIEW man talked were firmly convinced that they formed the best part of the entertainment—that they did more to instruct and make one feel that he had been well repaid for his visit; that he had learned something which he could only get by being present and seeing it with his own eyes; that the reason they have not always been as entertaining was because the arrangements were not properly perfected. Of course, it is not often that permanent facilities can be secured as at a college, but they can be made to very nearly approach them, and we commend to associations the adoption of such facilities as will make the clinics of the greatest importance, and they can take our word for it that the better the surgical clinics the more interest there will be to their members, ensuring large attendances and the production of much good. Below will be found a complete list of the subjects and the operators:

Median Neurectomy—E. B. Ackerman, of Brooklyn.
Sciatic Neurectomy—C. H. Jewell, of Dunkirk.
Casting a Horse—Charles Cowie, of Ogdensburg.
Castration by Torsion—-Charles Cowie, of Ogdensburg.
Casting a Foal—C. L. Barnes and J. W. Corrigan.
Casting a Cow—R. S. Huidekoper.
Casting a Cow—C. B. Potter, of Elmira, and C. W. Gay, of Ithaca.
Confining Large Animals by Stocks and Operating Table—W. L. Williams and assistants.
Chloroform Anæsthesia (Horse)—G. T. Stone, of Binghamton, and C. L. Barnes.
Vaginal Ovariectomy (Mare)—G. T. Stone.
Vaginal Ovariectomy (Mare)—A. H. Ide, of Utica.
Vaginal Ovariectomy (Cow)—C. H. Jewell, of Dunkirk.
Vaginal Ovariectomy (Cow)—C. H. Jewell.
Caudal Myectomy for Gripping of Reins—J. W. Corrigan, of Batavia.
Caudal Myectomy for Gripping of Reins—Carl W. Fisher.
Aseptic Castration (Horse)—C. W. Gay.
Repulsion of Diseased Molar, Removal of External Alveolar Plate, Artificial Drainage of Maxillary Sinuses through the Nostril (Horse)—W. L. Williams.
Peroneal Tenotomy (Stringhalt Operation)—A. H. Ide.
Application of Plaster of Paris Bandage to Hock—J. W. Corrigan.

THE SOCIAL ENTERTAINMENT

consisted in a reception tendered to the guests by the faculty of the veterinary college, and took place in the college building. A reception was held in the main hall by the ladies, and a pleasant half hour was passed in the formal presentation of the guests, after which Prof. Simon H. Gage gave some splendid views from the stereopticon and large extension lantern, illustrating the methods of studying histology and pathology. Up in the microscopical corridors there were awaiting the members innumerable instruments filled with instructive slides, but the point of most interest in this section was the excellent view to be had of the circulation of the blood in the gills of salamanders caught in Cayuga Lake; the tissues being so thin as to practically be no barrier to an unobstructed view. Then there was an apparatus indicating the beating of the heart of a turtle, another measuring the depth of the respirations of a man, and so on. When these entertainments were completed, all repaired to a frugal repast prepared for the guests on the lower floor, the affair being over in time to catch the trolleys for the hotels.

All in all, the meeting at Ithaca marked a new era in associational affairs in the Empire State, and all were so well pleased that they unanimously voted to accept Dean Law's invitation to hold the next meeting in the same place.

Among those present were the following:

Drs. Thos. J. Herr, New York City; C. J. Mulvey, Mooers; J. A. McCrank, Plattsburgh; Wilson Huff, Rome; Charles Cowie, Ogdensburgh; Roscoe R. Bell, Brooklyn; E. B. Ackerman, Brooklyn; Sam'l Atchison, Brooklyn; J. A. Bell, Watertown; W. H. Kelly, Albany; A. B. Kelly, Johnstown; W. B. Switzer, Oswego; E. M. Casey, Oxford; F. L. Kilborne, Kelloggsville; A. W. Baker, Oneonta; W. H. Salisbury, Clifton Springs; J. M. Taylor, Henrietta; Romanzo Perkins, Warsaw; L. L. Bishop, Delavan; W. J. Hallock, Auburn; A. H. Ide, Utica; George H. Berns, Brooklyn; C. H. Jewell, Dunkirk; Herbert Killips, Alexander; A. C. Hasslock, New York City; Alex. Findlay, Camden; G. C. Kesler, Holly; F. W. Hunt, Watkins; R. S. Huidekoper, Washington, D. C.; J. W. Darby, Fort Plain; Thos. G. Sherwood, New York City; J. C. Stevens, Cortland; J. L. Ronan, Corning; I. R. Webber, Rochester; J. M. Currie, Rome; A. J. Battin, Addison; H. Turner, Syracuse; F. W. Cook, Fayetteville; W. J. Johnston, Geneva; C. B. Potter, Elmira; Garry T. Stone, Binghamton; E. A. Bogart, Geneva; E. F. Vorhis, Oswego; H. D. Stebbins, West Winfield; J. H. Young, Belvidere; J. W. Corrigan, Batavia; James Law, P. A. Fish, S. H. Gage, V. A. Moore, C.

W. Fisher, J. A. Genung, Carl W. Gay, Ithaca, and C. D. Morris, Binghamton.

NOTES N. Y. S. V. M. S. MEETING.

Never again a meeting without a surgical clinic.

It was a practitioners' meeting throughout.

With such a meeting we predict that next year veterinarians from far and near will be falling over each other to get there.

Prof. Huidekoper as a bull-tamer was a success, but in a fast race with the bovine his avoirdupoise reacted sadly against him.

Weighty subjects of State medicine did not characterize the meeting; it was helpful to busy practitioners.

The active practitioners of the membership should illustrate easy methods of performing simple operations, as gained through ingenious experience.

"It was a grand meeting," was the verdict of every one as they left for home. Yes, probably as good as was ever held by any association in any country.

Secretary Morris counted 102 people in the hall during the reading of papers. What a contrast to the 25 or 30 of a few years ago.

The various sections of the State were well represented—the most conspicuous exception being Buffalo, and they were the losers. Her practical men cannot afford such a loss another year.

The spirit of surgery ran high, and the two instrument houses represented did a fine business. They were John Reynders & Co., and James F. McCune, of New York, both advertisers in the REVIEW.

The trolley ride "around the circle" gives a magnificent view of grand, wild and weird scenery—but the proximity of the road-bed to the edge of a bewildering precipice sends a romantic thrill through one's nervous system.

Dr. Cowie's casting harness caught the favorable opinion of all practical men. The doctor kindly laid them out so that any one who wished could take measurements and duplicate them if they wished. One veterinarian who did so kindly agreed to have his harness-maker take orders from those who wished a set, reducing thus the cost by making many.

When two such heavy weights as George H. Berns and R. S. Huidekoper occupy the same bed, something is liable to happen—and it did, about 2 A. M., the whole structure giving way, precipitating the occupants in a hopeless confusion of mattresses, humanity and yells. It made no difference to the sleepers though; "they laid where they fell"; and Berns' rheumatism has been worse ever since.

New York City had very few representatives at Ithaca, which is in keeping with her usual history. No city in the world has such grand opportunities for profitable and populous associational work as Gotham; and none improve them so poorly. With more than 300 graduates within a radius of twenty miles, a quorum is about the limit, whatever the character of the meeting. Five members from Greater New York were present—Ackerman, Atchison, Bell, Berns, and Herr. Another year and it will be a miracle if there are not twenty-five or fifty on hand early.

A call reaches the REVIEW to agitate a three-days' meeting for next year; but we fear for the wisdom of the proposition. With the American Association demanding four days' attendance the week previous, exclusive of three or four days' traveling *to* and *fro*, it would make too great a demand upon the time of those who wish to attend both, and many would feel that one or the other of the two events should be omitted. No, the State Society held a most successful two-days' meeting, and it would be much better to repeat or surpass the performance next year than to indulge in any new experiments. We understand that more work can be done in three days than in two; but enough was accomplished to send all home well pleased with their two days' work, and that is just what was aimed at.

Prof. W. L. Williams' new text-book, entitled "Surgical Operations," arrived at Ithaca just before the convention met, and created a very favorable impression among those in attendance. A small supply had just been received from the printer, and they were seized upon so quickly that many were disappointed. Elsewhere will be found a scientific review of this little work, but we will simply state here that it is in the nature of a translation of the excellent treatise by Prof. Pfeiffer, of the Veterinary High School in Berlin, together with a number of essentially American operations, notably those of Williams (the technique of the majority of which has appeared in the REVIEW), McKillip and Merillat, together with a preface to the original work by Prof. Fröhner. The little volume is profusely illustrated and the technique is so plain that any one who is at all familiar with surgical procedures and anatomy, can understand the subject at a glance. All veterinarians engaged in practice should have a copy. It was not published to make money, as the price, $1.25, will not permit of such a hope, and in order to place it before the veterinary public at a small cost, the author assumed all the responsibility of its publication. It can be had of W. R. Jenkins, New York, or Ballière, Tindall & Cox, London. Over fifty per cent. of those in attendance secured a copy, and the other fifty were kicking because the supply had given out.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The seventh semi-annual meeting was called to order by President S. H. Ward at 10 A. M., July 11, at the Holmes Hotel, Minneapolis.

The following members responded to roll-call: Drs. C. C. Lyford, S. D. Brimhal, J. G. Annand, A. A. Keyes, J. S. Butler, and M. J. Sexton, of Minneapolis; M. H. Reynolds, St. Anthony Park; L. Hay, Faribault; K. J. McKenzie, Northfield; S. H. Ward, St. Cloud; W. Amos, Owatonna; J. N. Gould, Worthington; A. F. Lees, Red Wing; H. C. Lyons, Hutchinson; H. C. Peters, Litchfield; W. A. Sproule, Waseca; T. Falconer, Glenwood.

The minutes of the previous meeting were read and accepted. The Treasurer's report was also read and accepted.

The following applicants were balloted upon and accepted as members of the association: Drs. J. G. Harris, J. W. Cook and J. McKay of Duluth; Drs. R. Lapoint and J. Murray of La Seur; Dr. D. M. McDonald of Brainerd; Dr. J. P. Foster of Bangor, S. D.

Communications from Drs. F. H. Farmer, M. S. Whitcomb, and B. Lambrechts were then read, each regretting his inability to attend.

The meeting then adjourned for dinner.

At 1.30 P. M. Dr. W. Amos gave his report on veterinary colleges, bringing out some important facts in connection with some of them. He also stated that two new colleges had been instituted since our last meeting.

Dr. C. C. Lyford reported for the Committee on Legislation and Empirics. He read a letter from the county attorney of Hennepin County stating that in his opinion the law regulating the practice of veterinary medicine and surgery in this State was valid and all right, but still did not advise carrying the McCulloch case to the Supreme Court.

At this juncture a Mr. Mercer, one of Minneapolis' most prominent attorneys, was called in to explain a few points in regard to the wording of the law. A lengthy discussion followed. On motion, it was decided to drop the case against Dr. McCulloch and not carry it to the Supreme Court, but instead that a new case be brought to fit under Sec. 8 of the law, in Ramsey County, and that a new committee be appointed to look after same. The committee appointed was Drs. R. Price, B. A. Pomeroy, and G. A. Dallamore.

Dr. S. D. Brimhal next reported for the Committee on Infectious Diseases, stating the number of cases of glanders reported since last meeting, number quarantined, number tested and number condemned. Also number of cases of tuberculosis reported, number tested and number condemned. The Doctor reported that two outbreaks of anthrax, malignant catarrh, had been reported from three districts, being from Steele, Beecker and Blue Earth counties. Blackleg seemed scattered through a good many different parts of the State.

Dr. Sexton reported for the Committee on Finances.

A communication was read from Dr. R. Price, who was then at St. Luke's Hospital in St. Paul, in which he gave his experience on the operating table while being operated upon for varicose veins.

Dr. Reynolds gave a lengthy report on recent advances in veterinary surgery, which was both interesting and instructive.*

Dr. S. D. Brimhal gave an extended report on recent veterinary literature, touching on bacteriology.

Dr. J. N. Gould reported recent veterinary literature bearing upon medicine.

The meeting then adjourned for supper, after which several autopsies were held on glandered horses at Carlson's Bros., on First Ave., North.

The balance of the evening was spent in the discussion of glanders and tuberculosis, and in the report of cases.

Thursday, July 12th, 9.00 A.M.—The members met at Dr. C. C. Lyford's Infirmary for the following clinics: Plantar neurectomy, Dr. L. Hay; plantar neurectomy, Dr. J. G. Annand; castration of a cryptorchid, Dr. J. N. Gould; plantar tenotomy, Dr. K. J. McKenzie; operation for capped hock, Dr. C. C. Lyford.

Thursday afternoon was spent at Lake Minnetonka, where the Twin City members had generously provided an outing for the rest of the members and their wives. The first-class steam boat *The Victor*, having been previously chartered for the afternoon, we were given a delightful boat ride, supper being served on the boat, which was considered a nice way to bring the members of the veterinary profession and their families together, so that they might become better acquainted. To say that a pleasant afternoon was spent does not express it; each returned to his home feeling that his time had been pleasantly and profitably spent at this meeting.

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* Printed elsewhere in this number.

K. J. MCKENZIE, *Sec.-Treas.*

ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION.

The eleventh semi-annual meeting was called to order by President Dr. V. G. Hunt. Roll-call and reading of minutes of previous meeting.

President Hunt then delivered a masterly and touching address to those present, receiving much applause from the membership.

By invitation of President Hunt, Dr. Martin, of Kankakee, then gave the association a talk on spavin, defining the location and characteristics of this disease, its causes and the probable outcome, giving his treatment.

Dr. Travis next read a paper on "Laryngitis," giving a careful account of the causes, symptoms and results of this disease, giving his mode of treatment. Responded to by Dr. V. G. Hunt. Discussion among the members regarding the efficiency of tracheotomy in the treatment of laryngitis. Dr. S. H. Swain, Dr. Martin, and Dr. John Osborne also responded.

Dr. S. H. Swain was next on programme for a paper on "Omphalitis," giving carefully its characteristics, causes and symptoms, giving hygienic and medical treatment. Responded to by Dr. G. G. Baumgartner. Dr. V. G. Hunt gave a history of a case in his practice. Dr. N. P. Whitmore, of Gardner, responded.

Discussion on the efficiency of the present law regulating the practice of veterinary medicine and surgery in the State of Illinois, and the possibility of an amendment. This subject was very generally and warmly discussed by all present.

"Contagious Abortion" was next on programme, by Dr. John Osborne. Dr. Osborne having a severe cold, his paper was read to the society by the Secretary. This paper was responded to by Dr. Martin, of Kankakee, and Dr. V. G. Hunt, and discussed generally by the society.

Dr. V. G. Hunt followed next with an excellent paper on "Enteritis," giving graphically his treatment and the probable outcome.

Dr. S. H. Swain recited the history of a case of tetanus, giving his experience with the carbolic acid treatment.

On motion the meeting was then adjourned until 8 A. M., Aug. 9th.

Thursday, Aug. 9th.—The application for membership of Dr. Marsh, of Illiopolis, Dr. T. D. Skeen, of Garland, and Dr. N. P. Whitmore, of Gardner, were then read by the Secretary, and the applications were referred to the Committee on Membership, who examined into the proficiency and eligibility of the candidates.

The Committee on Membership reported favorably on the application of J. W. Marsh, of Illiopolis, and N. P. Whitmore, of Gardner. The application of T. D. Skeen, of Garland, Ill., was tabled until the next meeting for lack of evidence. On motion, the report of the committee was accepted. On motion, the Secretary cast the vote of the association. Dr. Hunt then introduced the new members to the association, which extended the right hand of fellowship to them.

On motion, the location, date, and place of meeting were fixed in Decatur, Ill., at the Brunswick Hotel, on Wednesday and Thursday, Jan. 10 and 11, 1901. Motion carried.

It was moved and seconded that the chair appoint a committee to draft a set of resolutions, censuring the Board of Live Stock Commissioners and Veterinary Examiners for the wholesale manner in which they have granted licenses to practice in the State of Illinois. Dr. S. H. Swain, Dr. N. P. Whitmer, and Dr. S. D. Brown were appointed on this committee.

The resolutions are as follows:

Mr. Chairman:

Your Committee on Resolutions of Censure of the Board of Live Stock Commissioners and the Board of Veterinary Examiners of the State of Illinois, beg to report the following:

WHEREAS, A law has been passed known as the Veterinary Practice Act, and,

WHEREAS, The law made it obligatory on the part of the Live Stock Commission to appoint a State Board of Veterinary Examiners to inquire into the qualifications of applicants for license to practice veterinary medicine and surgery; and,

WHEREAS, M. H. McKillip, James Robertson, and Chas. H. Merrick were appointed as such Board of Veterinary Examiners, and, WHEREAS, The law clearly defines the duties of the Board of Veterinary Examiners as to the examination of applicants not entitled to practice by reason of not being in possession of a diploma, or of not having been in practice three consecutive years in the State of Illinois; and,

WHEREAS, The law requires that such applicants shall be examined in the following subjects, to wit: veterinary anatomy, surgery, practice of medicine, obstetrics, pathology, chemistry, veterinary diagnosis, materia medica, therapeutics, physiology, sanitary medicine, and meat and milk inspection, and such other branches as the Board may prescribe; and,

WHEREAS, It is well known by the members of this association, that the Veterinary Board have entirely ignored the law in making examinations, and have issued licenses to many persons of bad moral character, and who were entirely incompetent to practice, having neither practical nor literary knowledge of the science of veterinary medicine and surgery, thereby enabling such incompetent persons to point to the examination prescribed by law, and which they are supposed to have passed; and,

WHEREAS, Many such applicants of bad moral character, and who were known to be incompetent to practice, have been protested by men of good reputation and of known truth and veracity; and,

WHEREAS, Said Board have overridden said protests, and have knowingly violated the letter and spirit of the law, and have made the license fee the only qualification upon which to issue a license to practice; therefore,

Resolved, That we, the members of the Illinois Veterinary Medical and Surgical Association, do condemn, censure and deplore the conduct of said Board of Veterinary Examiners in the violation of their duties under the law, and further request their immediate removal from office.

S. H. SWAIN, V. S.
N. P. WHITMORE, M. D. C. } *Committee.*
S. D. BROWN.

The treatment of dysentery was then discussed by the members, and then the meeting was adjourned until January 10 and 11, 1901.
W. A. SWAIN, *Secretary.*

WEST VIRGINIA VETERINARY MEDICAL ASSOCIATION.

Drs. Petrie, Ruhl and Hershey, consulting veterinarians to the State Board of Agriculture, met in Wheeling, and called a meeting to organize a State Veterinary Medical Association. All the veterinarians of the State were notified of the meeting, and all responded in person or by letter, and all are in full sympathy with the movement. But owing to business engagements, Dr. O. M. Bradley, Mammington; Dr. Wm. Stanley, Charlestown; Dr. Geo. W. Kinsey, Wheeling; Dr. T. E. Gore, Clarksburg, were unable to be present.

Dr. Wm. Petrie, Wheeling; Dr. F. P. Ruhl, Fairmont; Dr. J. C. Callander, Parkersburg; Dr. W. H. Kerr, Sistersville; Dr. L. N. Reefer, Wheeling, and Dr. S. E. Hershey, Keyser, were present and met in the Y. M. C. A. parlors, and organized with the following officers:

President—F. P. Ruhl, Fairmont.
Vice-President—J. C. Callander, Parkersburg.
Secretary-Treasurer—S. E. Hershey, Keyser.
Executive Committee—Drs. Petrie, Kerr, Bradley and Ruhl (*ex officio*).

The annual meetings will be held the first week in July, the Executive Committee selecting the place and hour.

S. E. Hershey, *Secretary.*

NEWS AND ITEMS.

Dr. M. Francis, of Texas, was prevented from attending the meeting of the A. V. M. A. by sickness.

Dr. G. R. Young, of Omaha, Neb., is now connected with the B. A. I., stationed at South Omaha.

Dr. L. A. Robinson, of the B. A. I., Buffalo, N. Y., spent his annual vacation at his old home, Goodrich, Canada.

Dr. A. F. Martins, of Boston, has been transferred to Buffalo for microscopic work.

Dr. J. M. Johnson is now located at Kansas City, where he is purchasing horses for export to London, Eng.

Dr. Jno. P. O'Leary has recently been promoted from Assistant to an Inspector of the B. A. I., at Buffalo. This is a worthy testimonial to a deserving officer.

John Penniman, V. S., of Worcester, Mass., one of the oldest veterinarians in this country, father of Geo. P. Penniman, D. V. S., died in August last.

Dr. Charles H. Reed, of Westboro, Mass., has purchased and assumed charge of the practice of Dr. H. R. Stanhope, of Marlboro, Mass.

Dr. B. P. Wende and family, of Buffalo, N. Y., are spending a few weeks vacation in Cincinnati, O., and Kentucky. The doctor is one of the oldest members of the B. A. I. force, and may he enjoy his well-earned vacation.

Dr. W. Horace Hoskins was summoned home hastily at the close of the Detroit meeting by the serious illness of his brother, which also prevented him from attending the New York State meeting.

A. W. Littlefield, V. S., Newport, Me., advises one grain of the mixture of calomel ʒi, extract belladonna gr. iv, blown into the eye twice daily in cases of periodic ophthalmia, claiming that it causes rapid subsidence of the inflammation.

Dr. L. R. Sattler, of Newark, N. J., was unable to attend the meeting of the Veterinary Medical Association of New Jersey at Atlantic City on the 13th inst. by reason of a painful accident to his face caused by an explosion of turpentine.

The marriage of Dr. L. K. Green of the B. A. I., stationed at Detroit, to Miss Emma Becker, also of the B. A. I., of Buffalo, N. Y., was solemnized at the home of the bride, Sept. 19. After a tour of the Eastern cities, they will be at home in the City of the Straits.

Dr. M. Francis, of the Texas Agricultural College, whose researches and experiments with Texas fever were recently detailed in the Review, writes us that "during the last twelve months we have inoculated over a thousand fine northern calves, and have had them all summer in the fever country. Our losses up to this time are about seven per cent."

Maurice O'Connell, D. V. S., of Holyoke, Mass., graduate of the American Veterinary College, class of 1887, who has been a member of the Massachusetts Cattle Commission for a number of years, died at his home in August. He was a most genial gentleman, a good practitioner, and his early demise is much to be regretted. He has been in ill health for several years.

New York State Board of Veterinary Examiners.—The new Board of Examiners met at Ithaca on Wednesday evening, Sept. 12, and organized by the selection of Dr. George H. Berns as President, Dr. C. D. Morris, Secretary, and Dr. F. L. Kilborne, Editor. The subjects were grouped and apportioned as follows: Anatomy and surgery, Dr. George H. Berns; chemistry, materia medica and therapeutics, Dr. Charles Cowie; physiology and hygiene, Dr. C. D. Morris; theory, diagnosis and practice, Dr. F. L. Kilborne; obstetrics and embryology, Dr. John A. Bell.

Coleman Nockolds, M. D., V. S., recently of Grand Rapids, Mich., who took the last examination for Army veterinary surgeons, and received appointment as first-class veterinarian, writes the Review from the Presidio, Cal., under date of Aug. 31, as follows: "I sail from San Francisco on board the *Feredica* for Manila on or about Monday, Sept. 4th. I am going over in charge of the horses belonging to batteries C and

M of 7 th the Light Artillery. There will also be about 100 horses belonging to the Quartermaster's Department on board. Upon arriving at Manila I will join my regiment (the 1st Cavalry). If during my stay abroad I can be of any service to you by forwarding items, articles, etc., will be pleased to do so."

HAUPTNER RECEIVES PARIS PRIZE. — The International Jury of the Paris Exhibition, in the class of "Medicine and Surgery" of the German department, have granted the sole Grand Prix of this class to the veterinary instruments manufactured by Messrs. H. Hauptner's instrument works at Berlin. The granting of this prize will be of great interest to veterinary experts, especially if it is considered that the international jury of this class consisted of 12 physicians, 1 dentist, 1 veterinary surgeon, and one manufacturer, and that Hauptner's veterinary instruments were standing in competition with the surgical instruments manufactured by the most renowned firms. Besides the above, Messrs. Hauptner were granted the golden medal in the class of "agriculture" for apparatuses for the breeding and nursing of animals.

THE IOWA AGRICULTURAL COLLEGE.—We regret having been led into the error of announcing in last month's number the acceptance by Dr. M. H. Reynolds, of St. Anthony Park, Minn., of the deanship of this well-known institution. The mistake was not one of our making, however, as the information came to us from two sources, both of which were considered reliable. The facts in the case are that negotiations had proceeded so far as to have resulted in the election of Dr. Reynolds by the Board of Trustees of the College, but when the details of consummation were reached a hitch occurred which culminated in the subject being side-tracked. The college has, however, we are glad to learn, materially strengthened its working faculty by the election of two veterinarians, and there is every evidence that the school is destined to be at the very top of the advanced veterinary schools of the continent. John H. McNeall (University of Pennsylvania, class of '98) has been elected to the position of Assistant Professor of Anatomy and Surgery. He has been on the staff of the Bureau of Animal Industry since his graduation, located at Boston and Buffalo, but more recently he was assigned to field duty in the investigation of sheep scab, with headquarters at Shoshone, Idaho. The other excellent appointment is that of Dr. Louis A. Klein (University of Pennsylvania, class of '97), who assumes the position of Assistant Professor of Practice and Meat Inspection. Dr. Klein was engaged in private practice for a year, but relinquished it for the more congenial duties of slaughter-house inspection for the Bureau, being located at Chicago and Philadelphia. The vacant deanship has been filled by the election of the President of the College, Dr. W. M. Beardshear, A. M., LL. D., to the position of acting dean. Dr. John J. Repp, who has been doing excellent work since his connection with the Ames College, will fill the active duties of the deanship, and there is no doubt whatever but that with the infusion of this new and ambitious blood into the old school we are to have a live institution and one which is to take high rank.

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I have these duplicates: Vol. XVIII, July (1894); Vol. XV, April and May (1891). I need the following: Vol. XIX, September and October (1895); Vol. XVII, January (1894). Would like to exchange with some one having duplicates, etc. HUGH THOMSON, V. S., Sharbona, Ill.

NOVEMBER, 1894, REVIEW WANTED.

To complete my file I would like to secure No. 8, Vol. XVIII of the AMERICAN VETERINARY REVIEW. Any one having an extra copy of that number please address H. D. STEBBINS, V.S., West Winfield, N. Y.

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AMERICAN VETERINARY REVIEW.

NOVEMBER, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

OPENING OF THE SCHOOLS.

The veterinary colleges of the country to the number of about sixteen threw open their doors for the admission of students during the early part of October, and from all points come reports of the most encouraging character. The modification of the entrance requirements in New York State secured an increased attendance at both of the universities, the New York-American having 25 freshmen and a return of all the sophomores and those in the graduating class, while the New York State College reports a 33 per cent. increase. Similar encouraging reports reach us from the University of Pennsylvania, Harvard, McKillip, Chicago, Kansas City, Ames, and the Canadian schools, while from a few of the colleges no word has yet been received.

This was to be expected, since the general prosperity of the country and the augmented value of live stock could not fail to send forth young men in quest of a veterinary education. The efforts of interested parties to cause the abandonment of the horse having miscarried and the date of his retirement having been indefinitely postponed, those who have hesitated to come within the profession for fear of its becoming obsolete, may now feel that it offers to young men of education and adaptability more enticement than it ever did, as the field is becoming so widened and diversified that there is plenty to do to meet the tastes and talents of all; and the returns in gold and fame are as great as in other lines of human endeavor. The list of promotions in the Bureau of Animal Industry, published in the October REVIEW, is an encouragement to those who labor in this field. Such positions are worthy the ambition of men of the highest order, and there are constantly being opened up equally good, if not better, opportunities in the municipal and State departments of health and animal husbandry, while private practice is becoming more remunerative and honorable year by year as the quality of the practitioner and the intelligence of the public become advanced.

SURGICAL CLINICS AT ASSOCIATION MEETINGS.

It has been definitely demonstrated on every occasion where it has been tested that the surgical clinic is a popular section of a meeting of a veterinary medical association, whether it be national, State, or municipal in character. Although it can be truthfully asserted that the American Association has never held a successful one from the standpoint of well-carried-out arrangements, each one of the three thus far held has emphasized the fact that the membership were eager for them; they were on hand early and late, in readiness to witness anything that might be presented, and generous in their applause of whatever appealed to them as being meritorious. The fact that there were few occasions offering them the opportunity for such demonstrations is no fault of the conception of clinics, but to defective arrangements and disappointments in the failure of announced operators to fulfill their engagements. It is to discuss the errors of past endeavors that the REVIEW has taken up this subject at this time, and it expresses the hope that its readers who are familiar with the subject will offer such suggestions during the next few months as will insure the correction of many of the defects that have heretofore existed, and result in the presentation of a better and more satisfactory programme at the meeting of 1901. It has been said that the way to achieve success is by contemplation of our failures, and it behooves us to calmly scrutinize our three years' experiences and three failures, and out of it all evolve a successful scientific and practical clinic. While we are extending the opportunity to others to offer suggestions, we submit our own judgment that one of the chief factors in producing a chaotic confusion in the programme is the effort on the part of the Committee of Arrangements to avoid a conflict with the regular programme. The clinic is broken up into little niches of time when nothing else is announced—an hour or two in the morning, before the hour of assembling of the convention; a little more in the afternoon, and possibly a single operation in the evening. When the members have assembled at the designated field, Dr. So and So has not arrived, or the operator is present but the patient is absent, and when it is assured that the promised demonstration must be postponed, a substitute operation is improvised, which possibly encroaches upon the convention hour, and many are forced to hurry away with a feeling that valuable time has been consumed to little purpose. We throw out the suggestion that this piece-meal policy for holding surgical clinics be abandoned, and in its stead an entire afternoon be devoted to this important section, and that on that occasion the facilities for demonstrations be greatly increased, seats being provided in amphitheatre style, so that all may see and do so in comfort and without the necessity of crowding and climbing. A surgeon who volunteers to be present and to operate, should be made to understand that it is an obligation which cannot be neglected except for good cause. When the full afternoon's work has been completed the section is through with for the meeting, and members may occupy their seats in the convention hall without wondering if there is anything of more value to them transpiring at the clinic.

As we have already said, this subject is opened here for discussion. We have no intention of protruding our views upon the membership further than to express an opinion, and those of others will be welcomed to our pages in the hope that there may come to the Arrangements Committee a suggestion which will enable them to complete more satisfactory preparations than have hitherto existed.

A COLLEGE WITHOUT A FACULTY.

The novel spectacle of a college opening its doors for the reception of students, with a pretentious announcement of its facilities for imparting a veterinary education, virtually without a teaching faculty, is presented to the public by an alleged school down in Tennessee. The National Association was urged to visit that section in 1897 for what good it would probably confer upon the profession in Dixie, and as this school sprung up in the wake of its presence there it is presumed that its august deliberations inspired certain self-made veterinarians with the desire to seek fame in a higher sphere than had been vouchsafed to them in earlier life. Its sole owner and promoter, we are informed, is innocent of any knowledge of the science which he professes to teach, except that which comes from hard practical experience, while those by whom he is surrounded in his "faculty" are mostly medical men with more knowledge of other subjects than veterinary science, the only other member, aside from the owner, who is bold enough to affix "V. S." to his name being an individual unknown to local veterinarians, despite diligent search throughout the section. Those who were resting under the belief that veterinary medicine in this country had advanced to a position where such institutions were a matter of history are given a sudden awakening and realization that never in the days of "diploma mills" did so-called schools affront the public with less claim to merit than one or two which have recently come into existence under the sovereign laws of their respective commonwealths. What is the remedy? We do not know. While their utter incompetency to fulfil their announcement pledges is patent to all veterinarians, it is less easy to convince the legal authorities that they are impositions upon the public and barnacles upon an honorable profession. The dupes who may be buncoed into attending their sessions may rise in a spirit of resentment and bring open charges of fraud against their responsible heads, and thus force the authorities to close their doors ; but we doubt not that the ambitions of those who enter such "seats of learning" do not rise beyond the acquirement of a legal right to impose themselves upon a community through the coveted "diploma," irrespective of all other considerations. Their "graduates," of course, are debarred from practicing in any State having competent laws and from all associations of veterinary medical men, and it appears that the most effective means of dealing with such institutions is for the profession to let them severely alone, with the prospect that death from inanition will be the next "announcement."

ATLANTIC CITY BIDDING FOR 1901 CONVENTION.

Through the patriotic energy of Dr. Wm. Herbert Lowe, of Paterson, N. J., Atlantic City has entered the field with a strong determination to secure the meeting of the American Veterinary Medical Association for 1901, as the following letter from Gov. Voorhees indicates :

State of New Jersey, Executive Department,
Trenton, Oct. 11, 1900.

Dr. Wm. Herbert Lowe :

My Dear Doctor :—I have your letter of Sept. 18 in the matter of the thirty-eighth annual convention of the American Veterinary Medical Association, and note its contents.

As Governor of this State, I do most heartily extend to the above association an invitation to make Atlantic City, in this State, the meeting place of its annual convention of 1901. I do not believe your association can find anywhere a place better adapted for its work, and for the care of the representatives who may be present, and I do certainly hope your efforts in influencing your association to select Atlantic City will meet with success.

Very truly yours,
Foster M. Voorhees.

Dr. D. E. Salmon presented a paper to the last meeting of the American Veterinary Medical Association, entitled "Rabies and Hydrophobia," in which he answers in most emphatic terms, convincing arguments, scientific testimony, and statistical data those veterinarians who have been so persistently claiming in the very face of the most authoritative proof to the contrary the mythical nature of this dreaded malady of dogs. The first installment of this splendid production is printed elsewhere in this number, and the author is entitled to the thanks of his *confrères* for the great amount of research and pains he has taken to so completely refute the ridiculous assertions of the canine apologists.

IN the department of "French Review" in this number Dr. Liautard presents an abstract of an article by Prof. Nocard upon the diagnosis of rabies by post-mortem examination, based largely upon the important experiments of Von Gehuchten and Nellis. We regret, however, that the conclusions reached are of little practical value to the veterinarian, who must continue to affirm to anxious victims of the bites of suspected rabid animals that a post-mortem diagnosis is unreliable, and advise that the patient receive the antirabic inoculation.

ERRATA.—In October REVIEW, page 514, line 17, for "Dicrowelium" read "*Dicrocœlium*"; line 18, for "(Dij)' read "(*Duj.*)," abbreviation for *Dujardin*. Page 517, line 6, for "Syodes" read "*Ixodes*"; line 6, for "Boöphylus" read "*Boophilus*"; lines 6 and 7, for "Rhypicephalus annutatus" read "*Rhipicephalus anuulatus.*"

DR. F. J. WILSON, the oldest practitioner in Brooklyn, N. Y., died in that city in October. For many years he was the leading veterinarian of the Eastern District, and although a non-graduate, took a great interest in the elevation of the profession. When the Columbia Veterinary College was in existence Dr. Wilson gave the school the advantages of his large practice, and the students collected there every Sunday morning, with some of its faculty, and a large clinic was thus afforded them. The school gave him the addendum degree of D. V. S., in consideration of his work, which caused considerable comment at the time.

ORIGINAL ARTICLES.

RABIES AND HYDROPHOBIA.

BY D. E. SALMON, D. V. M., WASHINGTON, D. C.

A Paper read before the American Veterinary Medical Association, at Detroit, Mich., Sept. 6, 1900.

There has perhaps never been a time when it was more important than it is to-day for the veterinary profession to have a clear appreciation of what it knows in regard to the subject of rabies in animals and in man. In the pre-experimental period of the profession's existence there was ample excuse for difference of opinion, even concerning the most apparent and most essential phenomena of this disease. It was the time when dependence was placed upon clinical observation of accidental cases, where the conditions were not controlled, and where the conclusions founded upon imperfect evidence were often unsound and liable to vary with the idiosyncrasies of the observer. But that period is past. To-day we have a science resting upon an experimental basis. Facts and conclusions have been established just as rigorously, just as solidly, as in other departments of science. And while we still have much to learn, as they have in every other branch of science, the fact that there are other fields to conquer does not detract in the least from the value or certainty of the results which have already been achieved.

As members of a learned profession it is our duty to know what has been accomplished by the scientific investigation of rabies; and particularly is this duty incumbent upon those who attempt to teach other members of the profession or the laity as to the facts in the case or the attitude of the profession. We have reached a point where the intelligence, the scientific knowledge, the standing of the veterinary profession in this country, I might say of the medical profession as well, are liable to be unjustly questioned because of a few mistaken and misguided individuals who persist in reiterating beliefs which never were held by a majority of the profession and which were discredited and disproved years ago.

The mistaken views to which reference has just been made may be briefly enumerated as follows:

1. There is no specific disease to which the term rabies can be applied. This alleged disease has not been clearly defined and no characteristic features have been enumerated by which it can be identified. The supposed cases of rabies are ordinary affections such as indigestion, epileptic fits, cerebritis, paralysis, etc., improperly diagnosed.

2. There may be such a disease as rabies, but it is extremely rare. Nearly all the cases alleged to be rabies are ordinary diseases improperly diagnosed. Not one dog in a million supposed to be rabid is really affected with that disease, says one writer, and this opinion is echoed by the editor of a prominent medical journal.

3. The method of diagnosis by the inoculation of rabbits and guinea-pigs is uncertain and misleading. The same results may be obtained by inoculating with inert substances.

4. Admitting that rabies of the dog may be encountered in extremely rare instances, the disease is nevertheless not communicable to man. The alleged rabies of man is a nervous affection developed as the result of worry and fear after being bitten—it is really lyssophobia.

5. The destruction of superfluous dogs and the muzzling of dogs for the control of rabies are cruel and unnecessary measures.

It appears to the writer simply astounding that educated men, much less physicians and veterinarians, will put forward such propositions as these in regard to a disease which has been known and described in every age since the faintest dawn of history and which for a century has been the subject of experimental investigation by the ablest men who have occupied their minds with pathological questions. Nevertheless, it is a fact that the sanitarian of to-day who tries to control rabies is obliged to meet the same kind of arguments which were used to embarrass his predecessors of one, two and three centuries ago. These arguments are most industriously circulated by the so-called humane societies, which oppose all conclusions based upon experiments with animals, and which foolishly imagine that they are doing a great work for the dogs and cats by casting discredit upon science, even though by so doing they perpetuate this horrible disease of which dogs and cats are the principal victims. But, unfortunately, the humane societies and the lay press are not alone in this effort to discredit science. It was said a few years ago that there had been so much of this sort of literature circulated among physicians that many hesitated to return a death as from rabies when the history and symptoms of the case warranted that diagnosis. This false doctrine has been propagated to such an extent that in one of the great cities of the country, recognized as a centre of medical learning, there have been two coroners in succession skeptical as to the existence of hydrophobia in mankind, and who have refused to record deaths as occurring from this disease even when the cases were reported as such by the attending physician. In one such case I understand the diagnosis was proved by the inoculation of rabbits and that the disease was transmitted to three series of these animals. In another and more recent case it is reported that an eight-year-old child was bitten in the ear by a tramp dog which strayed into the kitchen of her home. The wound soon healed and nothing was thought of it until about six weeks later when the child complained of pain in the head and neck, which was soon followed by difficulty of drinking, spasm of the pharyngeal muscles upon the slightest draught of air or touch of water upon the body, or suggestion of drinking, great nervousness with paroxysms of excitement and fear. Death occurred in about two days. Nevertheless the coroner was positive, according to press reports, that the disease was not hydrophobia. How did he know?

In recent years we find very few veterinarians in this country who practically agree with the humane societies and either deny the existence of rabies or contend that if the disease exists it is so rare as not to be deserving of attention. The existence of such opinions in our profession emphasizes the importance of investigations to collect the facts and of discussions to fix these facts in the minds of our *confrères.*

It is not many years since the effort was made to eradicate contagious pleuro-pneumonia from this country, and then we were met by the same class of reckless assertions, to the effect that there was no pleuro-pneumonia in the country, that pleuro-pneumonia of cattle was not contagious, and that we might kill all the cattle in the country and when we stocked up again we would have the same disease, since it was due to the conditions of environment and not to contagion. How completely all of these assertions have been disproved is known to every one of you. Again, it is not many years since an estimable army surgeon was presenting papers before our medical associations to prove that there was no such disease as Texas fever. To-day Texas fever is so well known that no one would undertake to question its existence and specific nature. Of late years, it has been the existence and specific nature of rabies that has been doubted and questioned and ridiculed.

THE REALITY OF RABIES.

What do we know about the existence of rabies and how do we know it? Let us briefly inquire.

From the time of Aristotle (322 B. C.) till the present day we have clear accounts of this disease existing through every age, and provoking fear and horror in many countries. It was always caused by the bite of an animal, which animal was generally alleged to be rabid. It was almost invariably described as fatal in men and animals. The symptoms from the earliest times have been given as nervousness, restlessness, fear, irritability, paroxysms of fury, spasmodic contractions of certain muscles, paralysis and death. Aristotle admitted that the disease was fatal to dogs and every other creature which they bite, except mankind. This early mistake in regard to the immunity of man has been carefully handed down across the centuries and is still repeated on every hand by those who oppose measures for the prevention of the disease. It may be freely admitted, therefore, that there have probably been many in all ages who have doubted the existence of the disease both in mankind and in animals, that numerous articles and books have been written to prove that the disease called rabies was not contagious and that the supposed rabies of man was lyssophobia, a nervous affection brought on by fear and excitement.

The medical profession as a whole has, however, always recognized the existence of such a disease as rabies in man. The veterinary profession has from its foundation recognized the existence and contagiousness of the disease; its schools from the earliest to the latest have consistently taught this doctrine, and its text-books are all but unanimous on the subject. Would it not be wonderful, amazing, incredible, if at this late day it could be proved that the thousands and hundreds of thousands of observations recorded from the birth of history to the present day were misconceptions, that the authors were deceived and the disease a myth? Where can you find a parallel to such a complete overthrow of an ancient, and almost universally accepted conclusion concerning a phenomenon so accessible to observation and investigation?

The doubts raised from time to time concerning rabies and its characteristics were, however, early met by scientific experiments. Zinke* in 1804 announced that he had inoculated a dog, a rabbit and a cock with saliva from a rabid dog, taking the saliva with a brush from the animal soon after its death and spreading it over superficial wounds of the inoculated animals. The dog was inoculated in an anterior limb, and showed prodromic symptoms on the eighth day and was rabid on the ninth day. The rabbit was rabid on the eleventh and the cock on the fourteenth day.

This experiment made so early in the century proved that the disease of the dog called rabies was communicable by inoculation to the dog, the rabbit, and the fowl. It proved it to b a specific disease and that the virus existed in the saliva. I this it confirmed the results of clinical observations extendin over many years.

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*Zinke, Gottfried: Neue Ansichten der Hundswuth, etc. Jena 1804. S. 180. Quoted by A. Högyes: Lyssa, Wien 1897, p. 32.

Count Salm-Reifersheid* in 1813 recorded experiments i which several dogs were inoculated, part with fluid and par with dried saliva from a rabid dog. These became affecte with rabies after eight to ten days.

Berndt† in 1822 inoculated four wethers with saliva fro the mouth of an ox which had died of rabies. The inoculatio was made by smearing the saliva over a wound made by an i cision through the skin of the limbs. All of these sheep co tracted rabies, the inoculation period being 22, 25, 26 and 3 days.

Hertwig inoculated fifteen dogs during the years 1823, 182 and 1825. The material used was saliva from rabid animal and this was placed in lancet punctures made in the skin of th frontal region, except with two animals in which the inocula tion was made at the back of the neck. Six of these dogs co tracted rabies, the periods of incubation being 19, 27, 32, 34, 3 and 40 days.‡

On June 14, 1841, Prof. Rey, of the veterinary school o Lyons, France, allowed a dog brought to the hospital affecte with rabies, to bite a ram on the nose and right foot. Th wounds cicatrized in five days. In thirteen days (June 27) th animal showed the first symptoms of rabies. The followin day it became furious when approached, violently attacke objects presented to it, threw itself against the walls and th bars of its pen or rushed upon persons who came near it. I seized its chain with its teeth, attacked another sheep place ear it, butted it, then jumped upon it as if for copulation. The hird day of its illness it was very weak and unable to rise. The ourth day it died.

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* Allgem. Anzeiger, 1813, No. 1. Quoted by Högyes, *loc. cit.*, p. 32,

† Journal der practischen Heilkunde, G. W. Hufeland, 1824, Nov., pp. 59–61.

‡ Beiträge zur nähern Kentniss der Wuthkrankheit odor Tollheit der Hunde, vo Oberthierarzt Dr. Hertwig. Journal der practischen Heilkunde von C. W. Hufelan 1828, pp. 112–129.

Two days before the death of the ram mentioned (June 28) wo other rams were inoculated from it. One had the lips ubbed several times against those of the affected animal, and he other was inoculated in the nose and upper lip by punctures f a lancet charged with saliva. The former did not contract he disease. The latter was first affected August 6, or 38 days fter inoculation. The symptoms were similar to those of the irst ram and resulted in death.

December 21, 1841, a sheep which approached the kennel of a rabid dog at the Lyons school was seized by this animal and bitten through the nose. January 4, 1842, or fifteen days after inoculation, it showed the first signs of rabies. It died the third day. The second day of the disease, saliva from this sheep was inoculated upon another sheep by lancet punctures at the nose and internal aspect of the upper lip. This sheep became affected January 27, or the twenty-second day, and died the night of the 30th.

January 30, 1842, the last day of the life of the sheep just mentioned, its saliva was inoculated by lancet punctures in the nose and lip upon two other sheep. The first contracted rabies in 23 days, dying two days later; the second became affected in 36 days and died in three days.

March 8, a sheep was inoculated from the last mentioned animal and in the same manner as already described. April 15 it presented the symptoms of rabies after 38 days' incubation. It was at first violent and later paralyzed in its posterior extremities. It died the ninth day.

April 20, a sheep was inoculated with the saliva of the one last mentioned. June 1, or 42 days after inoculation, it presented symptoms of rabies of greater intensity than the one from which it was inoculated. It showed marked excitement, striking the soil violently with its fore feet when approached; when set free it ran after people, trying to strike them with its head and attacked particularly dogs. It lived six days, complete paralysis of the posterior limbs occurring before death.*

A lamb was inoculated from the last of the series, which did not contract rabies; so that out of eight inoculations of sheep by biting or lancet puncture the disease was transmitted seven times.

These successful experiments made during the first half of the century by competent men are absolutely conclusive as to the existence of a disease of the dog communicable to dogs and to other animals by biting and by inoculation with the saliva. If this disease is not rabies, what is it? And if you give it some other name, do not the facts stand the same under one name as under another?

It is not correct to say that the disease alleged to be rabies has not been defined with sufficient clearness for its identification. Let us see. A disease affecting principally the nervous system, shown by restlessness, irritability, fury, convulsions, paralysis, death; caused by the bite of an animal, similarly affected; communicable by inoculation with the saliva; having a long period of incubation (three to six weeks); comparatively short course of disease (two to ten days); invariably fatal. Is not that picture clear enough for identification? With what other disease can it possibly be confused? Let those who make these allegations in general terms descend for a moment to details and answer these questions.

Further, it is hardly conceivable that an intelligent person, least of all a physician or a veterinarian, would hold at the present day that a dog affected with simple indigestion, convulsions, cerebritis or paralysis would develop virulent saliva capable of causing by inoculation a fatal disease of the nervous system in other animals and with the transmitted peculiarity of virulent saliva. If this fanciful idea were established as a fact, the dog would be about the most dangerous animal in existence, and very few of us would care to come in frequent contact with him. So far from making us more tolerant of the dog, the demonstration of the spontaneous development of a deadly virus in this animal's saliva, for such slight causes as have been assigned, would make us shun and fear him as we do the most venomous serpents. Fortunately for the dog, fortunately for mankind, and fortunately for all animated creatures, this conception of the self-constituted apologists for the canine species is without the least foundation in science and undoubtedly false.

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* Rey. "Expériences sur la Rage." Journal de medécine de Lyon, Dec., 1842, p. 461.

The spontaneous generation of rabies under certain conditions has been held by many eminent men who would not for a moment entertain the view that the disease developed from indigestion, epileptic fits and other common ailments. The same men held that rinderpest, pleuro-pneumonia and glanders originated spontaneously. But how rapidly has the belief in the origin of these diseases in the absence of contagion died out since the discovery of the nature of contagion. Who to-day believes in the spontaneous origin of pleuro-pneumonia or glanders? We know that these diseases are caused by vegetable parasites of the nature of bacteria, and that if the bacillus of glanders or that of pleuro-pneumonia originally had its habitat in nature outside of the animal body, as is probable, the transformation from a saphrophytic to a parasitic existence unquestionably required unusual conditions and a long period of time. That the same is true of the contagion of rabies follows from analogy and is confirmed by the failure of the disease to develop in Australia, and by its absence from Sweden and Norway since its eradication from those countries. More recently we have seen the disease in Great Britain reduced from more than 600 cases a year practically to zero by a few years of intelligent and systematic repression. Surely this result would not have been attained if the disease frequently originates *de novo*. There is no direct evidence in favor of the spontaneous generation of rabies; investigators who have tried to produce it by keeping dogs under the conditions which were said to cause it, have uniformly failed. The tendency of modern thought and modern knowledge is unfavorable to this hypothesis, and it is regarded as antiquated, discredited and unworthy of serious consideration in the absence of direct and convincing evidence. If we admitted the spontaneous generation of the disease, however, such a conclusion would in no sense benefit the dog nor those interested in that animal. On the contrary, it would make us more suspicious of the canine species and require all the more rigorous destruction of superfluous animals with the strict enforcement of regulations to prevent contagion.

(*To be continued.*)

SOME NEW VETERINARY DRUGS.

By A. C. Hassloch, V. S., New York City.

TANNOPINE (VETERINARY).

Manufactured by the Farben-Fabriken of Elberfeld Co. (Germany).

Tannopine is a chemical combination of tannic acid and hexa-methylen-tetramine. The glucoside tannic acid is so well known that it requires no further explanation. Hexa-methylen-tetramine is the product of a basic compound derived from ammonia by the substitution of NH_2 for the H molecule, with methylen, a radical molecule of the composition CH_3. Tannopine is a reddish-brown powder, odorless, tasteless, of a slightly acid reaction (almost neutral), insoluble in water, alcohol, ether and dilute acids, but dissolving gradually in weak alkaline fluids. It contains about 87 per cent. ac. tannic and like the latter is incompatible with compounds of iron. On account of its chemical composition it is not dissolved until it reaches the duodenum. Beginning at this portion of the gut it exerts its action as a non-irritant astringent, antiferment, and intestinal antiseptic throughout the entire length of the intestinal canal, and is of great service in the treatment of diarrhœal affections, acute and chronic intestinal catarrh, and enteritis of horses, cattle and the smaller animals.

Dose.—Horse, ʒss–ii; cattle, ʒi–iv; dogs, gr. 15–45.

Can be readily given in oatmeal gruel, or with the feed, because it is tasteless.

Case A. — A high–strung, nervous eight-year-old mare, speedy, had shown symptoms of intestinal catarrh for a period of two years. Her symptoms were always much aggravated after driving, so much so that even with the best of care she would remain idle for several days after a long drive. She had been bred the year before; but aborted. She received first a drench consisting of formaldehyde ʒ ss, turpentine ℥ ii, raw linseed oil enough to make Oj. After this had operated, she received tannopine ʒ ss, three times a day, with the feed, for one week, when she showed slight improvement; the dose was now increased to ʒ i for another week, with more decided results; third and fourth weeks, ʒ iss, night and morning, and she made a complete recovery, gaining in weight while at moderate work.

Case B.—Two setter puppies, 10 weeks old, developed diarrhœa as the result of feeding on milk just turning sour. The diarrhœal condition had extended over four days when I first saw them. They presented the usual symptoms of emaciation, weakness, fever, abdominal tenderness, more or less tympanitis, inappetence, and diarrhœal discharge, profuse and mucous in character, and since the last day containing some blood. They were at once given oatmeal gruel with whiskey and put on tannopine, 10 grs., made into an electuary with some glycerite of starch; this dose was repeated every three hours till four doses had been given, then three times a day. Febrile symptoms were somewhat abated by the night of the first day's treatment and entirely absent by next morning. They now began to eat and were out of all danger on the third day. Treatment was continued for several days as a matter of precaution. When seen a week later they appeared well and playful.

Case C.—Gray gelding, 10 years old, weight about 1700 pounds. Affected with acute intestinal catarrh, following an attack of heat exhaustion. This animal showed the usual symptoms of the disease, diarrhœa being particularly profuse. He was given a bolus of ʒ iv as an initial dose, and ʒ ii in oatmeal gruel four times a day. At the end of fourth day, the dose was reduced to ʒ i; at the sixth day he was discharged and has worked ever since.

EPICARIN (VETERINARY).

Manufactured by Farben-Fabriken of Elberfeld Co. (Germany.)

This is a condensation product of a salicylic acid derivative and betanaphthol, and occurs in commerce as a reddish-brown crystaline powder, permanent in air, of a decidedly acid reaction, soluble in alcohol and ether, but insoluble in water.

Being an acid, it combines readily with the basic alkalies to form soluble neutral salts. Its melting point is 199° C. The veterinary epicarin is a raw product and but little of the pure is obtainable. However, when pure, it occurs as small, colorless,needle-shaped crystals, imparting a clear straw color to its alcoholic solution. Veterinary epicarin is non-toxic to such a degree that dogs treated with it and freely licking themselves have developed no untoward symptoms, and it is therefore preferable to the more toxic parasiticides and germicides, such as carbolic acid, creolin, lysol, creosote, trikresol and others which are extensively used in the treatment of mange and other skin diseases. Experiments of Dr. Geo. Müller, of Dresden, with veterinary epicarin, on the *sarcoptes minor* of the cat and *acarus folliculorum* of the dog proved conclusively that the remedy destroyed these parasites in from 5 to 15 minutes, when applied in a 10 per cent. solution, in alcohol, while mixtures of the remedy with fat, oils and green soap did not prove destructive for several hours. Prof. Frick, of Hanover, recommends the 10 per cent. solution of epicarin in alcohol as the safest and most efficient destroyer of acari and sarcoptes.

My own experience is that epicarin is not only a most efficient parasiticide, but also of great utility in the treatment of itching skin diseases of horse and dog, giving rapid relief from the irritability of the skin, accompanying that common disease of the dog, eczema, in its manifold forms. In order to secure satisfactory results in long haired animals, it is necessary to apply the solution with a strong stiff brush, so as to ensure forcing it through to the skin.

COLLARGOLUM—ARGENTUM COLLOIDALE CREDÉ.

Argentum Solubile Credé—Soluble Metallic Silver Credé.

Prepared at the Chemical Factory Von Heyden at Radebeul, near Dresden, Germany, after the process of Prof. Credé.

Collargolum is a non-toxic, allotropic silver, occurring in commerce as brownish-black, lustrous, irregular, fragile lumps, of neutral reaction, and readily soluble in water and albuminous fluids. According to Credé it remains as metallic silver in sterile blood or lymph, but when in the presence of pathogenic bacteria or their toxins, enters into combination and acts as a powerful germicide or antitoxic agent. In veterinary practice it may be regarded as a specific in the treatment of purpura of the horse and can be safely administered in very large doses, as argyria does not appear to result from its use.

It has been proposed as a diagnostic agent to detect glanders in the horse, but in this it fails entirely. In purpura, I have found that this form of silver, when administered subcutaneously or per os, is of little or no use, but very prompt results follow the intravenous injection of this agent. The best form for this purpose is a solution of 0.5 (7½ grs.) in 50 cc. of sterile water to be thrown directly into the jugular vein; these injections are made three to five times daily; in fact, Prof. Dieckerhoff has used it as frequently as every two hours during the first day. It is a fact that in all of my cases treated with collargolum the petechiæ disappeared in a day or two at the most, while the swellings were more persistent, and while these were considerably abated, they did not disappear entirely for several days. Some cases received as many as 22 intravenous injections without any bad results; in fact, I have not lost a case of purpura since I began treating this disease with collargolum, which I push till the petechiæ and swelling disappear. When very frequent injections are administered, the fæces become blackened. Local applications, consisting of salt solution, containing some formaldehyde, help to allay the swellings. For heavy draft horses the initial dose may safely be 10 grs., as these animals are not very susceptible to silver in any form, and collargolum of all others is the least toxic.

In conclusion, I would say that in the case of a horse, a brown gelding aged six years, weight about 1600 pounds, was suspected of glanders, and on being treated with mallein, exhibited a positive reaction. For experiment, I began treatment on him with three intravenous injections of collargolum of 10 grs. each, daily; at the fourth day, there was no longer any nasal discharge and all symptoms appeared diminished. The treatment was then continued, twice daily for a week, then once daily for two weeks, at the end of which time there was nothing left to show that the animal had ever been infected, excepting the slight thickening of the off hind leg and the scars of the healed ulcers. Temperature returned to the normal on the fourteenth day. The animal was turned out to pasture, while given a tonic twice daily, and one month later was put to work. At last accounts he was still working, and appeared in excellent health and spirits, although the hind leg remained somewhat thickened. This horse died of colic during the early part of August, without an opportunity to hold a post-mortem. This is the only case of glanders I have ever had the opportunity to treat medicinally, and I am willing to undertake another if the circumstances are favorable.

THE RELATION OF VETERINARY MEDICINE TO THE PUBLIC HEALTH.

By William Herbert Lowe, D. V. S., Paterson, N. J.
(*Former United States Veterinary Officer of the Port of New York.*)

A Paper read before the American Veterinary Medical Association at Detroit, Mich., September 5, 1900.

I think it is a safe statement to make that people recognize and appreciate much quicker and in a fuller sense what veterinary medicine does for their pet animals and for themselves, in a commercial sense, in protecting the animal wealth than they do for what the science does for the health and lives of the people themselves.

When the veterinary practitioner is successful in restoring to health his patron's pet dog, or in saving the life of his valuable horse, his services are in the great majority of instances appreciated, but what he does to protect the health and lives of the people is seldom understood or recognized.

A great work is being done by qualified veterinary practitioners all over this broad land in sanitation and preventive medicine, and it is a deplorable fact that the nature and scope of this work is not more fully understood by otherwise intelligent people. Preventive medicine will advance as its value is recognized and demanded by the public generally.

Not many years since when contagious pleuro-pneumonia broke out among cattle and the animal industry of the country suffered heavy financial losses it did not take the public long to demand State and National legislation to exterminate the disease. This disease struck the most sensitive thing in creation—the bank account—and although there was absolutely no danger of transmission of the disease to mankind, yet measures were taken at once, which, under able guidance at Washington, resulted in the extermination of the disease. While this was as it should have been, yet it seems strange from the standpoint of the veterinary profession that the public is so slow in supporting and encouraging what veterinary science is capable of doing for the health and lives of the people themselves. The conscientious veterinarian is constantly looking out to improve sanitary conditions, have animals kept under hygienic conditions, as well as to treat diseased animals, and last, but not least, to prevent the transmission of disease to human beings. It should be remembered that the veterinarian is truly the guardian of the public health, as in many instances diseases transmissible to man as well as bad sanitary conditions first come under his observation. If he deals with them as they should be dealt with he protects human life and health. Is it not better to prevent infection than to allow it to occur and then try to relieve or cure the patient? Of course, it is not intended or contemplated to put the human practitioner out of business, but simply to relieve the busy practitioner as much as possible.

Speaking seriously, permit me to say that a large integral part of preventive medicine belongs essentially to comparative medicine, and nobody recognizes and appreciates this fact more than far-seeing members of that time-honored profession. The truth is that the two branches of medicine, human and veterinary, are inseparable. No advance can be made in one without benefitting the other. The contemporary advances in medicine have necessitated an extensive remodelling of the medical and veterinary curricula and methods, and we see as a result the incorporation of the principal veterinary colleges in our great universities.

No fact has drawn a closer connection between animal and human diseases, or the protection of the public health through domestic animals, than the introduction of the antitoxin principles of serum therapy. The immunizing of animals against fatal contagious diseases; the rapid and certain diagnosis of latent diseases which cannot be known by physical symptoms and their early isolation before they have spread their disease germs among their kind, or even to the human family; the cure of some diseases by the administration of repeated doses of attenuated virus and the prevention of development of disease by their early administration—are phases of the rôle of veterinary science which makes it a great preserver of the public health. Contemplate for a moment the importance of these serums: Tuberculin, used for the diagnosis of tuberculosis in dairy cattle; mallein, used for the diagnosis of glanders in the horse; vaccine, employed to protect mankind from small-pox; tetanus antitoxin, employed in the treatment of lockjaw; diphtheria antitoxin, employed in the treatment of diphtheria, as well as the antitoxins employed in anthrax, rabies, and other diseases. The value of animal serums employed for diagnostic, prophylactic and therapeutic purposes to mankind cannot be estimated.

We hear a good deal in these latter days about the "passing of the horse," which is absurd; but even if such were the case, there would still remain a vast field open in this country for qualified veterinarians in connection with the work of State and local boards of health, throughout the length and breadth of this broad land, to say nothing of laboratory and experimental work which veterinarians must participate in if true science is to advance as it should. Another great field for the veterinarian is in aiding the development and maintenance of the animal industry and wealth of this country; not only in presenting and actually treating and restoring sick animals to health, but primarily in the science of breeding and in the development of animal life for special purposes useful to man, as well as in securing a sound, wholesome meat and milk supply. Then, again, people will always have dogs and pet animals that they want cared for when ill; so it must be evident to every thoughtful person that the field of veterinary research and practice is almost illimitable to the scientific veterinarian.

The United States Bureau of Animal Industry is doing a great work in the matter of the inspection of meat for inter-State and foreign trade, but this matter of meat inspection should not stop here. We as a people are a business people, and here again the financial considerations seem to have more weight with us than that of our health. We are more particular, yes, far more particular, about the quality and healthfulness of the meat we export to England, France and Germany, than we are of the meat produced for home consumption.

This is no criticism of the work of the Bureau of Animal Industry, for this branch of the Federal service is carried out as far as the law contemplates and in a very effectual and far-reaching manner. It is the function of local boards of health to take care of this matter. Competent veterinarians must be selected to do this work if it is to be of any real value to the public.

The scandals and sensational reports of bad meat supplied to our soldiers in the Spanish-American war must have suggested the importance of an adequate veterinary inspection of animal food and what it would have meant to their health and the lives of the men serving in our army.

A great deal has been said recently about milk inspection, but it seems to me that the authorities in a great many instances begin at the wrong end of this whole business. Instead of beginning by inspecting the milk, as is often done, they should begin by inspecting the animals, their stables, and the dairy generally. Every dairy should be under veterinary supervision. A good cow, healthy and sound, properly stabled and properly fed, is going to give good, wholesome milk ; and a poor cow, unthrifty or unhealthy, improperly stabled and improperly fed, is going to give poor, unwholesome milk.

The veterinary inspector should require good hygienic and sanitary conditions. The cows as well as the stables should be kept clean, the drainage and ventilation must be looked after, and the cows must have ample air space and light. Proper and good food and pure drinking water are essential. The milk as soon as drawn from the cow should be removed to another building, to be taken care of and prepared for market away from objectionable odors and injurious bacteria and germs. Not infrequently healthy milk absorbs poisonous or disease germs between the time it is drawn from the cow and the time it is delivered to the consumer. A few enterprising firms have done much to provide a wholesome milk supply, such as the Fairfield Dairy Company in my own State, but the general way cows are cared for and fed, and the way that milk is usually handled, is far from what it should be. The public need educating in this matter and local boards of health should require proper veterinary supervision over dairies and the milk supply in every locality.

I do not wish to tire you with a long paper, so will conclude with the request that the relation of veterinary medicine to the public health shall be discussed as its importance demands.

THE RELATION OF BOVINE TO HUMAN TUBERCULOSIS.

By G. A. Johnson, D. V. M., Sioux City, Iowa.

Read before the Sioux Valley Medical Association, at Storm Lake, June, 1899.

Mr. President, Ladies and Gentlemen: Perhaps you, my hearers, are not in accord with him who sang "Tell me the old, old story, tell it again," but I trust that you will bear with me for a short time while I give you a somewhat recent version of the old, old subject, tuberculosis.

I say the old, old subject, for history from the earliest times to the present day is replete with accounts of a disease that to-day we term tuberculosis.

Various terms have been used to designate the disease, and numerous theories have been advanced to explain its etiology and pathology. Often these theories confounded this with other and entirely dissimilar diseases, and until recently several of the localized manifestations of the disease were considered as separate and distinct diseases.

At one period the disease would be considered contagious, and at another, not so. These changes in the prevailing theories have been much more marked and frequent among physicians than veterinarians. Theory could not convince the veterinarian that the disease was not contagious, when he saw it spread, gradually, yet surely, from one animal to another under favorable conditions.

But it was not until the latter half of the nineteenth century that the etioiogy and pathology of this "great white plague" were placed upon a sound basis, through the works of Villimian and Koch.

Notwithstanding the fact that much has been accomplished since these discoveries were made, there remain many phases of the subject to be worked out. One of the most important of these problems yet to be solved is the relation existing between human and bovine tuberculosis. And it is this phase of the subject that I wish to present for your consideration this evening.

Succinctly stated, the proposition is, that tubercular lesions, wherever found, are the direct results of the action of the tubercular bacillus; and further, that the domestic cow is the natural harbinger of this bacillus; or in other words, tuberculosis was primarily a disease of the bovine species, and is found in man and other animals as a result of transmission, brought about through the ability of the tubercular bacillus to adapt itself to the various conditions, as found in the various animals.

I fully appreciate the fact that this position is not in accord with the prevailing thought of the medical profession; but it would be a waste of time and energy, yours and mine, for me to present thoughts fully in accord with yours.

Assuming that it is generally agreed that the disease is transmissible from one animal to another, and from various species to others, man included, I shall confine my efforts to a brief résumé of some of the facts that indicate that tuberculosis is naturally a bovine disease.

Premises.—If we find that a certain disease is always prevalent where certain conditions prevail, the world over, and that it is never prevalent where these conditions do not exist, we have at least very strong presumptive evidence that these particular conditions must exercise a greater or less influence upon the distribution and spread of this disease.

This fact having been established, it at once places the disease in a new light, and suggests very important factors in relation to the control or eradication of the disease.

If this premise is tenable and susceptible of a logical deduction, and I believe that it is, such factors should always be considered in dealing with any disease, but more especially a contagious one.

In following out this thought, a brief examination of some of the various conditions in which we find tuberculosis most prevalent may present a new phase of the question.

Climate.—While a dry, temperate climate may have more or less favorable influence upon the progress of the disease, we know that no set of climatic conditions, as to heat or cold, dryness or moisture, constantly prevails, for we find that the disease is prevalent in various sections from the torrid to the frigid zones.

Again, altitude, while it has in most places a marked influence on the progress of the disease, has but little influence upon the distribution of it, as is shown in the fact that certain peoples inhabiting the Dead Sea basin, which is between 100 and 200 feet below the sea level, are free from tuberculosis; whereas, it is more or less prevalent among most people inhabiting the mountainous regions of Europe and America.

Civilization is not a constant factor in the distribution of this disease, for some of the savage and semi-civilized peoples are seriously afflicted with tuberculosis.

Other things being equal, we find the disease more prevalent the denser the population, but density of population is not a constant factor in the distribution of this disease, for we find that the masses of the people of China and India, two of the most densely populated countries of the world, are comparatively free from tuberculosis, whereas the disease is quite prevalent among the farmers of Europe and America.

Filth and poor sanitation have a marked influence in hastening the development of the morbid processes, but they are not constant factors and exert but little influence upon the distribution of the disease, for we find it all the way from the wigwam to the palace.

Thus we find that while the various conditions of climate, altitude, sanitation, etc., exert more or less influence upon the development of the morbid processes, they have but little influence upon the distribution of the disease.

Perhaps you are saying that tuberculosis is so widespread and is prevalent under such diverse conditions that there are not and cannot be any constantly associated factors in its distribution.

Nevertheless, a careful study of the geographical distribution of tuberculosis reveals the fact that all peoples who use the milk and flesh of the domestic cow (the in and in-bred cow) as food products, are more or less afflicted with tuberculosis. And further, that there is usually a very uniform ratio between the quantities of such foods consumed and the prevalence of the disease among the people.

On the other hand, all of those people who do not use the food products of the domestic cow are comparatively free from the disease.

The exceptions to the above are those communities where there are a greater or less number of transient tubercular patients, or where a greater or less percentage of the inhabitants are tuberculous subjects, who have migrated to these special localities that they might receive such advantages as climatic conditions and altitude might afford.

A short résumé of the geographical distribution of the disease will, I think, justify this statement of facts:

Prof. E. F. Brush, M. D., of Mount Vernon, N. Y., in a paper read before the New York Academy of Medicine, April 18, 1889, makes the following statement: "This insidious and delusive disease is not the result of civilization, as is generally supposed. Barbarous and semi-civilized races are afflicted as severely as many of the most advanced civilized races.

"Neither geographical position nor climatic conditions are a factor in the distribution of pulmonary phthisis. Every known part of the globe, with a few isolated areas excluded, is a habitat of the disease. After several years of close study of the affection, and consulting all accessible statistics and the habits of the people where the disease prevails, the only constantly associated factor is found, in my opinion, in the inbred bovine species, without any regard to the social position of a community or its geographical habitation, terrestrial or atmospheric condition. If a community is closely associated with inbred cattle, tuberculosis is prevalent."

In the fifteenth annual report of the State Board of Health of New York, for the year 1895, on page 720, may be found the following: "Human tuberculosis is co-extensive with bovine tuberculosis. Broad generalization of our knowledge shows a close parallelism between the numbers of dairy cows and the prevalence of tuberculosis in the human race. Countries that have few or no cattle, or in which the herds are mainly kept in the open air, and are therefore largely protected from the disease, show as a rule little tuberculosis in man."

Europe.—In the European countries cattle have existed and tuberculosis has prevailed in man, to a greater or less extent, for centuries. Some special localities will be mentioned later.

In some of the more recently civilized countries, we find that tuberculosis was very rare or unknown before the introduction of the domestic cow.

Australia.—During the early settlement of Australia by the English, tuberculosis was so rarely seen as to give strength to the idea that the climatic conditions of the country were incompatible with the disease. But with the advent of cattle raising, which began to be carried on extensively in 1821, consumption began to appear among the people and it has gradually increased, as has cattle raising, until the disease has become nearly as prevalent there, notwithstanding the delightful climate, as it is in the mother country, England.

New Zealand.—A similar condition prevails in New Zealand; previous to the colonization of this country by the English, phthisis was unknown among the Maories. But with the advent of the Englishman's cow, tuberculosis became a veritable scourge to this simple people, that threatens the extinction of the race if measures are not taken to control its spread. As Hirsch has so well put it: "In my opinion, the death rate from phthisis will keep on increasing in that locality if the breeding of cattle is not properly regulated by law." This statement of Hirsch means that tuberculosis must be controlled in cattle, or the Maories must go.

South Africa.—In South Africa we find a different condition. The early explorations of the white man revealed the fact that the principal vocation of the coast tribes was cattle raising. And, owing to the peculiar customs of these tribes, their cattle were very closely inbred. It was also noticed that tuberculosis of a very malignant type prevails among these tribes. Whereas, the tribes of most of the interior parts of Africa, who have no domestic animals because of the Tsetse fly, are free from tuberculosis.

Madagascar.—The native tribes of this island have comparatively large herds of cattle, the flesh and milk of which form their principal source of food. And, according to Grenet, this semi-civilized people are severely afflicted with tuberculosis.

North American Indians.—Previous to the time that Uncle Sam placed the Indians under his fatherly care, they were free from tuberculosis; but since they have so far advanced in civilization as to eat beef furnished to them by this government, tuberculosis has become very prevalent. According to some of the physicians who have been stationed at some of the Indian reservations, tuberculosis causes as high as 50 per cent. of the mortality of some tribes. The custom of dividing a carcass of beef among a large number of Indians, and the fact that they eat any and all parts uncooked, either fresh or dried, will probably account for the prevalence of the disease, as a single carcass would, under these circumstances, serve to infect a large number of Indians. Some have attempted to account for this unusual per cent. of infection by the filthy habits and unsanitary abodes of the Indians. But I am of the opinion that there are no reasons to believe that the Indians are filthier to-day than they have always been. Nor are the Indian wigwams any filthier or as close and unsanitary, as are the igloos of their northern brothers, the Esquimaux; yet these latter people, in their natural haunts, are free from tuberculosis. The Esquimaux has his dogs and reindeer, but no tuberculosis; while the Indian has his dogs and beef, and is seriously afflicted with tuberculosis. On the other hand, it has been found that the Indian is no more susceptible to the disease than is the Esquimaux. For when the Esquimaux is brought in contact with the white man and his cow, he readily contracts the disease, as is shown by the prevalence of tuberculosis among these people who live in the Danish settlements of Greenland.

St. Michaels Island.—In St. Michaels Island we have a somewhat different condition. Large numbers of cattle and sheep are kept on the island, but they belong to the landlords, who export most of the meats and milk products. The peasants who take care of the stock and market the products toward payment of rent for the land, principally use the ass as a beast of burden and a milk producer for his own family, because this animal can be kept more economically. Notwithstanding the fact that the climate is not favorable for tuberculous people, the disease is very rarely seen among the peasants.

Iceland.—A very similar condition exists in Iceland, yet the Icelanders are quite susceptible to the disease when they emigrate to Denmark, where meat and milk are staple articles of food.

Switzerland.—In some of the cantons of Switzerland there are few cattle, goats being largely used instead, and tuberculosis is not common in man, while in other cantons there are more cattle, and tuberculosis is more prevalent among the people.

Italy.—In Italy, a country blessed with one of the balmiest climates of the globe, tuberculosis is very prevalent.

Steppes of Russia.—The Cossacks who inhabit the steppes of Russia are free from tuberculosis. These people use the flesh and milk of the horse for food. They have large numbers of horses, but no cattle.

Great Kabylia.—Tuberculosis is unknown among the semi-civilized tribes of Great Kabylia. These people have large flocks of sheep and goats, but no cattle.

South America.—Similar conditions are found in a majority of the South American countries. That is, they do not use much beef or milk, and they are comparatively free from tuberculosis.

The United States.—But let us come a little nearer home. A few years ago when the red man followed the bison and the deer trails over our western prairies unmolested by the hand of civilization, Minnesota and Iowa were thought to be nature's sanitaria for consumption. But to-day we find the white man in possession, and cattle raising one of the principal industries of this comparatively thinly settled country. And tuberculosis is quite prevalent among the people; while it is estimated that 1½ to 3 per cent. of the cattle (and we know that as high as 75 per cent. of some herds) are tubercular. Thus we find that as the country settles up, and cattle raising takes the place of the chase, nature's sanitarium moves to the west.

China.—In China we find a peculiar condition relative to tuberculosis. The wealthier, or ruling classes, who live in the best homes and are surrounded with the best sanitary conditions of the country, having plenty to subsist upon, and using more or less of the food products of the cow, are frequently afflicted with tuberculosis, while the poorer classes, who can scarcely eke out an existence, and live in crowded quarters and under conditions that are anything but good from a sanitary standpoint, subsisting almost wholly upon a vegetable diet, probably never tasting meat other than rat soup, are free from tuberculosis.

India.—A somewhat similar condition prevails in India. Owing to religious beliefs these people are largely vegetarians.

Other and similar instances could be cited, but I trust that sufficient has been presented to substantiate the statement that among every people who use the food products of the domestic cow, tuberculosis is more or less prevalent; while it is rarely, if ever, seen among those peoples who do not use such foods.

Comparison of the Disease.—In the main, the morbid lesions are very similar, if not identical, in man and cattle. Yet a brief comparison of the disease as seen in the two species reveals, among others, these apparent differences, which may in reality be differences of degree rather than of kind.

First.—The disease runs a more insidious course in cattle than in man.

Second.—The formation and escape of tubercular pus is much more limited in cattle than in man. This is probably due to the marked tendency in cattle toward a limitation of the morbid process by the formation of a dense, firm, fibrous, limiting membrane, surrounding such morbid processes.

Third.—The ulcerative condition so frequently met with in man is not so common in cattle.

Fourth.—Septicæmic conditions that so constantly accompany pulmonary tuberculosis in man are rarely seen in cattle, except in the very last stages of the disease.

Fifth.—The anæmia, rapid loss of flesh and strength, so constant in tuberculosis of man, are not seen in cattle, except in the latter stages of extensive morbid lesions.

Sixth.—Tuberculin has very little, if any, deleterious effect on cattle, whereas it is supposed to have a marked influence on the germ, arousing an activity in latent conditions of the disease in man.

Seventh.—Differences, though slight as they may at first appear, indicate that the cow is the natural harbinger of this germ ; or at least that nature has endowed cattle with much stronger powers of resisting the invasion of the tubercular bacillus.

If the disease is wholly or even largely distributed by tubercular people, why is it that in China the disease is quite prevalent among the wealthier classes, who are surrounded with the better conditions of life, while it is very rarely found among the poorer classes, who live, to use the expressive slang phrase, "any old way"? Why is the disease not transmitted from the wealthier to the poorer classes? Would it not be reasonable to expect that after it had once gained access to the haunts of these poorly clothed, illy housed, and precariously fed people of the poorer class, that it would spread among them with more rapidity than it would among those whose surroundings are better in every way, and less favorable to the development of the disease, except that the wealthier classes use the food products of the cow?

If the disease had been but recently introduced into this country by a few persons having contracted it in some foreign country, it would be easy to arrive at satisfactory conclusions, but such is not the case, for the conditions, as relates to the disease and the two classes, have not materially changed for many years.

The only logical deduction that I have, as yet, been able to derive from these facts, is that the cow, in this case as least, is the principal factor in the spread of the disease. And what is true of this case should be equally true in others. Perhaps others may be able to offer a more satisfactory explanation.

Again, if the human tubercular patient is such an important factor in the transmission of the disease, why do not the permanent inhabitants of resorts for consumptives more readily contract the disease? Or why do not the tribes of Central Africa become infected from the coast tribes?

Would it not be reasonable to expect this process to go on until the disease would be as prevalent among the interior as the coast tribes?

It would appear from these facts that there is very little tendency for the disease to spread among those peoples who do not use the food products of the cow.

One of the most common, and perhaps the most fallacious argument that is brought forward in support of the theory of human transmission, is the theory that the seat of primary infection, or more properly speaking, the seat of the most frequent extensive morbid lesions, is an indication of the method of infection; or, in other words, that the seat of the morbid lesions points out the avenue through which the germs gained an entrance to the animal economy.

If we reason by analogy, it is at once apparent that the theory is misleading. Take for illustration, small-pox, measles, mumps, Asiatic cholera, bubonic plague, yellow fever, etc. These are bacterial diseases that are transmitted, or rather contracted, by inhalation. Yet in none of them are the morbid lesions confined to the air passages or the lungs; in fact, these organs are not affected, except as a complication of the disease proper.

Again, anthrax and blackleg of cattle, and glanders of the solipeds, are usually contracted through the ingestion of contaminated foods or water; but the morbid lesions are not confined to the digestive tract; in fact, it is the exception to find seats of the infection in these organs, especially in the latter disease.

The question naturally arises, why should this theory apply to the tubercular bacillus so much more forcibly than to other organisms of a similar nature? Nor do laboratory experiments substantiate this theory as fully as we might reasonably expect.

It should be borne in mind that in artificial inoculation the bacilli are usually introduced into the animal economy in very much larger numbers at a time than in natural infection.

Is it beyond the limits of sound reasoning to suppose that if a large number of these germs are introduced at a given point that they will act as a foreign body that will produce more or less irritation, thereby forming a favorable nidus for the development of the germs and obstruct their entering the circulation? Whereas, in natural infection the germs are usually so few in number as to produce little or no irritation to a free surface; consequently, they would be much more likely to gain an entrance to the circulatory system. Therefore, we should expect a much greater per cent. of development of morbid lesions at the point of entrance in artificial than in natural inoculation.

My experience in post-mortem inspection leads me to believe that in cattle primary lesions of the lungs are comparatively rare. A careful necropsy will usually demonstrate that the primary focus or foci are in some of the lymph glands, and with these serving as extensive culture fields, from which the germs are carried to other parts of the animal economy by continuity of the parts and by the circulatory systems. This process of auto-infection, with probable reinfections from external sources, sooner or later results in extensive or generalized morbid lesions.

In swine the lymph glands, spleen and the osseous tissue seem to be the most frequent seats of primary foci.

It is evident from the above that the germ first enters one of the circulatory systems before finding a field suitable for its development.

If this be equally true in the human, as some post reports seem to indicate, it is very evident that the theory in question is erroneous.

In connection with this phase of the subject, I will cite the history of a case as given to me recently by a prominent physician who was called to treat what he had reason to believe was a case of chronic, or more properly speaking, simple tonsilitis in a woman. Ordinary treatment for this affection was prescribed, and the throat lesions rapidly subsided without rupture on the free surface; but the patient developed constitutional disturbances which proved to be tubercular meningitis that ran a remarkably rapid course, death taking place on the forty-first day from date of calling the physician to attend the throat trouble. This woman was of a tuberculous family, a brother having recently died of that disease.

Judging from the conditions I have seen in cattle, as above described, I am inclined to believe that this throat trouble was tubercular, and that instead of the tubercular products escaping by an opening on a free surface, as in previous attacks, it was absorbed, with the results as above stated.

Again, will the advocates of this theory please explain how it is that we have primary infection in the form of tubercular ostitis, arthritis and meningitis? If the germs do not enter the circulatory system, how do they reach these deep seated tissues? And if the germs do enter the circulatory system in these instances, are they not just as likely to enter it in other instances? And if they do enter the blood channel at all, are they not as liable to be carried to the lungs as from them?

One more thought relative to the spread of this disease by inhalation. It has been demonstrated beyond question, by a number of the leading bacteriologists of the day, that sunlight and atmospheric exposures will destroy most of the pathogenic micro-organisms. This seems to be especially true of the tubercular bacillus, yet how often it is that physicians and others will write and talk about the dangers of contracting tuberculosis by inhaling the tubercular germs that are constantly floating in the air in connection with dust, etc. While there is no question but what the tubercular bacillus may often be found in quite large numbers in the dust of buildings and especially rooms that have been, or are, occupied by phthisis patients, it is equally true that outdoor air is rarely contaminated with these germs.

If the air is so impregnated with these germs as some would lead us to believe, would it not be reasonable to expect that we would have more or less wound inoculations in the bovine species, for wounds in cattle are very rarely kept antiseptic. And if we should get inoculations from this source, and the theory is true that the tubercular bacillus always leaves his path of entrance to the animal economy strewn with morbid lesions, we would certainly have more or less cases of local manifestation of the disease in cattle, the same as is sometimes seen in the human, and fully 90 per cent. of all adult cattle would thus become inoculated at some time. Yet so far as I know, there is not a single case of this kind on record.

No, gentlemen, when we talk about the constant spread of this disease through the inhalation of the germs in the outside air, we are simply clinging to the relics of an old, pernicious, bygone theory.

Several theories have been advanced to explain how immobile bacilli gain an entrance to the animal economy, but my time will not permit me to discuss this phase of the question, further than to say that while none of them have as yet been fully substantiated, some recent experiments seem to indicate that germs adhering to oil globules, as in meat and milk, may be readily taken up by the lacteals. When this point shall have been settled, it will undoubtedly clear up some mooted questions of to-day.

I am of the opinion that the tubercular bacillus usually enters either the blood of lymph systems as does other germs, and is carried along until it reaches a field that presents favorable conditions for its development, provided it is not destroyed by natural forces before reaching such fields. The lymph glands, especially those of the splanchnic cavities, most frequently present favorable fields for the primary development, though this may differ somewhat with age, species, and the physical condition, not only of the animal economy, but with the various organs, as injuries of the osseous tissue, especially in the young emboli and stenosis of the small blood vessels, etc. The air vessels of the lungs, especially in man, may at times present favorable conditions, but these are exceptions, rather than the rule.

While it is quite generally agreed by the medical profession that there is more or less danger in the use of the food products of tuberculous animals, this phase of the question has never received the attention that its importance justly demands. There has been but little concerted action upon the part of the medical profession to prevent the spread of the disease through the use of the food products of tubercular animals.

It appears as though a large per cent. of the busy practitioners have, perhaps unintentionally, arrived at the conclusion that to control tuberculosis is beyond the power of man, and give the subject very little consideration, other than to prescribe such lines of treatment as promise the best results, entirely ignoring the fact that their patient is, perhaps, being daily reinfected through the use of contaminated foods.

It is evident from the almost unlimited lines of treatment that have been advocated, that curative treatment has received much more attention than has been given to prophylactic treatment.

Perhaps you are asking, what can be done to lessen the spread of the disease? In reply I would say that if the logical deductions of this paper were followed, all that would be necessary would be to stamp out the disease in the bovine species. But to assist in the good work, to hasten its accomplishment, and to obviate all danger of a possible error in the views presented, I would suggest the adoption of such sanitary precautions as may be justly enforced relative to tuberculous people and animals; for every tubercular animal is, to a greater or less degree, a disseminator of the tubercular bacillus, and I would especially urge the prohibition of the traffic in and sale of the food products of tuberculous animals, as may be accomplished by proper milk and meat inspection, as indicated in the following:

By the proper use of the tuberculin test and proper sanitary measures, the dairy can be freed and kept free from tuberculosis, and inspection properly carried out will prevent the sale of the flesh of diseased animals. But in order to accomplish this we must have laws enacted that will provide for such inspection and furnish the money with which to carry on the work; and before this can be accomplished, the general public must be educated to have a just appreciation of the dangers that constantly attend the use of all foods that may be contaminated with tubercular bacilli.

The Position of the Physician.—As physicians, you have it in your power to wield an immense influence for good in this field. Good results would soon be manifest if each physician would recommend to his patrons the use of, and use in his own family only such animal food products as have been properly inspected.

Each and every physician has more or less political influence which he should not fail to exert in behalf of wholesome legislation along these lines. This is a just proposition, because the question of stamping out tuberculosis, that is, the enactment of laws and the appropriation of money to carry on the work, savors largely of politics.

If the medical profession of the State would make a united effort in behalf of the suppression of tuberculosis in the dairy cattle of the State, it would not be long ere we would have good laws and plenty of money with which to carry on the work.

In conclusion, let me urge you to rouse from your lethargic state relative to this disease. Let all of us take an active part in stamping out this, the greatest of all animal scourges, that we may feel that we have, in this instance at least, fulfilled our duty towards mankind.

BIBLIOGRAPHY.—(1) Paper by Prof. E. F. Brush, M. D., of Mt. Vernon, N. Y., before the New York Academy of Medicine, April 18, 1899, The Relationship existing between Human and Bovine Tuburculosis. (VETERINARY REVIEW, Vol. XIV, No. 11.)

(2) State Board of Health of New York, Fifteenth Annual Report, 1895.

(In compiling this paper, I have freely consulted all authorities at hand, and especially the two above cited.)

THE ARMY MULE.

Let others sing of the noble horse,
High-stepping, brave, and gay,
Who prances proudly o'er the course,
In his patrician way.
A humbler figure claims our song,
A victim of misrule,
The poor, oppressed, yet tough and strong
American army mule:
The long-eared mule,
Missouri mule,
The balking, biting,
Kicking, fighting,
Rough and rusty,
Tried and trusty,
Tough old army mule.

He's no prize beauty, and, beside,
He wasn't made for show.
The meat inside his leathery hide
Is gristlier than a crow.
But warring nations wait until
He comes across the sea
Before their armies move to kill
The blarsted enemy.
He's ugly, churlish, crabbed, glum,
And cross, and sullen, yet
He's won his crown of martyrdom
A thousand times, you bet!
That tough old mule,
Missouri mule,
That aw-he-hawing,
Kicking, jawing,
Bucking, biting,
Swearing, fighting,
Ugly, rancorous,
Rude, cantankerous,
Old, moth-eaten,
Weather-beaten,
Measly, piebald,
Glistening eyeballed,
Grouty, grumpy,
Rope-tailed, dumpy,
Darned old mule,
Missouri mule,
American army mule!

—*Chicago Tribune.*

BENEATH a grotesque photo of Dr. H. L. Ramacciotti, who sits beside the sick bed of a poor mule taking his pulse from the plantar artery of the off front leg, the Omaha *Daily News* has this to say: "Dr. Hugo L. Ramacciotti is a muchly known man about Omaha. He's been here for years—is the first veterinary surgeon to locate this side of the Missouri River—and has a reputation extending from New York to San Francisco. He is now city meat inspector and a leader among the Italians of the city. He is an active knight of Ak-Sar-Ben and his clever work at the initiations this summer called forth many words of praise."

REPORTS OF CASES.

"*Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.*"

TORSION OF THE UTERUS IN MARES.

By W. A. HECK, Maquoketa, Iowa.

Inspired by Dr. W. J. Martin's report of "Torsion of the Uterus" as published in the June REVIEW, I submit the following:

Case I.—At 2 P.M., June 7th, was called to see a 24-year-old bay mare, weight about 1100 lbs. Was past due to foal, but all the day she had acted strangely; and making no progress the owner grew uneasy and called help. Patient bright and strong and in good flesh. Would remain standing most of the time and ate grain and hay, but occasionally labor pains would come on, when she would lie down and strain. Nothing showing at vulva and no discharge. Vulva perhaps a little swollen. Examination soon revealed torsion of the uterus, the first case I had found in an experience covering a period of nine years. Unlike Dr. Martin's case the diagnosis did not bother me, as the spiral folds of the vagina were easily made out, showing plainly I had a case of left torsion. From my previous reading I had concluded rolling the animal in a recumbent position to be the most practical method of accomplishing reduction, consequently the casting harness was applied and the mare secured ready for action. Then with my arm in vagina and hand pushed as far into the cervix as possible, instructions were given for the animal to be turned from right to left over her back. After a few unsuccessful attempts she was turned in opposite direction, which seemed only to increase the trouble. It was a sunny afternoon and no shade, with the weather quite warm, and no one without experience can appreciate the enormity of such a task. Finally the twist was so modified that with great effort I could insert my hand into uterus. Then I thought "success is mine," only to be chagrined some time later by the mare suddenly expiring while I was still at work. Post-mortem immediately: Much extravasated blood about cervix, with inflammatory invasion to uterus and peritoneum. The foal was extra large and somewhat swollen. Am sure mare could not have lived even though I had accomplished delivery.

Case II.—Morning of June 21st, called 8 miles in country to see 9-year-old bay mare, 1100 lbs. Presented similar symptoms as No. 1. On examination found left torsion of uterus. Profiting by my first experience resolved to try a different procedure. Animal was cast as before. Instead of passing arm into vagina, it was passed into rectum well up under the gravid uterus. (In this way a pretty good grasp can be had on a limb of fœtus, even through the folds of intestine and uterus.) The mare lay on her left side on a sloping piece of ground. When all was ready instructions were given to quickly turn mare over on back to right side; at the same time I lifted the womb, and, much to my surprise, nearly righted the organ at the first turn. The foal was quickly delivered alive and both mare and colt did well. Now, whether or not it is better to direct our efforts from rectum in such cases I can't say, but am inclined to think it is. In this case, especially when mare's rump was turned down hill, the arm could be gotten entirely under the bulky and heavy uterus, and in this way one can certainly come nearer keeping the organ stationary while the mother is being turned than could be possible from vagina. In fact, I believe fully as much good can be accomplished by simply turning the mare as can be done by vaginal manipulations. Again, I am satisfied that the sooner we get to work at these cases the better will be our success. The fact of a living foal being in the womb may have made some difference. I think it did. I am not convinced that torsion of the uterus, to any considerable degree, can exist very long without pathological alterations and death to fœtus. Strangulation of vessels with consequent extravasations tend to complicate matters.

If called to a case of uterine torsion where the mare had suffered colic one, two, or three weeks previous I should hesitate very much to give it as my opinion that the twist occurred concurrently. Post-mortem conditions in No. 1 create grave doubts whether an animal would go very long after the gravid uterus turns over without manifesting it in some manner. No history of colic could be had in either case. They were both left twists, and as near as I could make out the uterus had turned half over. I am inclined to believe in both cases the torsion occurred the night previous to my visit.

It would seem from recorded cases in "Fleming's Obstetrics" that cows are much more susceptible to uterine torsion than are mares, while our observation teaches us that horses are much more inclined to roll than cattle.

While succeeding splendidly with my second case the memory of my first still lingers, and I am not at all anxious for another. I hope some one who has a successful method of treating such cases will "speak out."

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
of the McKillip Veterinary College, Chicago, Ill.

ABDOMINAL SURGERY (*Continued*).

II. Cæsarian Section.—The removal of the fœtus by making an incision into the abdominal wall of the mother, was first performed upon human subjects after the death of the mother for the purpose of saving the life of the fœtus; and later the operation was performed upon the mother while still alive for the same purpose; recently, however, as the methods of operating improved, the procedure became an approved method of saving the life of both mother and child. The Greeks were familiar with this method of removing the fœtus from the womb while the mother was still alive (*Heister's System of Surgery*, *Vol. II.*). The earliest case reported with any details of the operation was performed in the latter part of the fifteenth century, by a spayer of Seigerheusen, who operated upon his wife after a number of midwives had exhausted their resources; the spayer extracted the child by making an incision into the abdomen and saved the life of the mother and child. A full account of the case is found in the appendix to Roussetus's works, which was written by Gaspar Bauhin some time during the 16th century. The operation in early years was generally performed by midwives; and, in the absence of modern surgical methods, naturally proved unsuccessful, which caused surgeons who were familiar with the sequelæ following surgical operations under such conditions and knew their inability to obviate them, to disapprove the operation; but, since the surgeon has adopted asepsis, and learned to combat the unfavorable sequelæ, the operation has resumed its place among the practical ones.

Indication for Cæsarian section may be satisfactorily enumerated as follows, viz.:

1. Pelvic malformations.
2. Malpresentations.
3. Multiparity.
4. Monstrosities.
5. Pseudo-pregnancy.
6. Extra-uterine pregnancy.
7. Rupture of the uterus.
8. Torsion of the uterus.

1. PELVIC MALFORMATIONS. — Pathological conditions which interfere with the removal of the fœtus may be located in the soft structures of the pelvic region, or in the bones that form its skeleton (Fig. 21); besides, parturition may be rendered impossible by congenital deformities. The conditions that can be classed under malformations may be mentioned as follows, viz.:

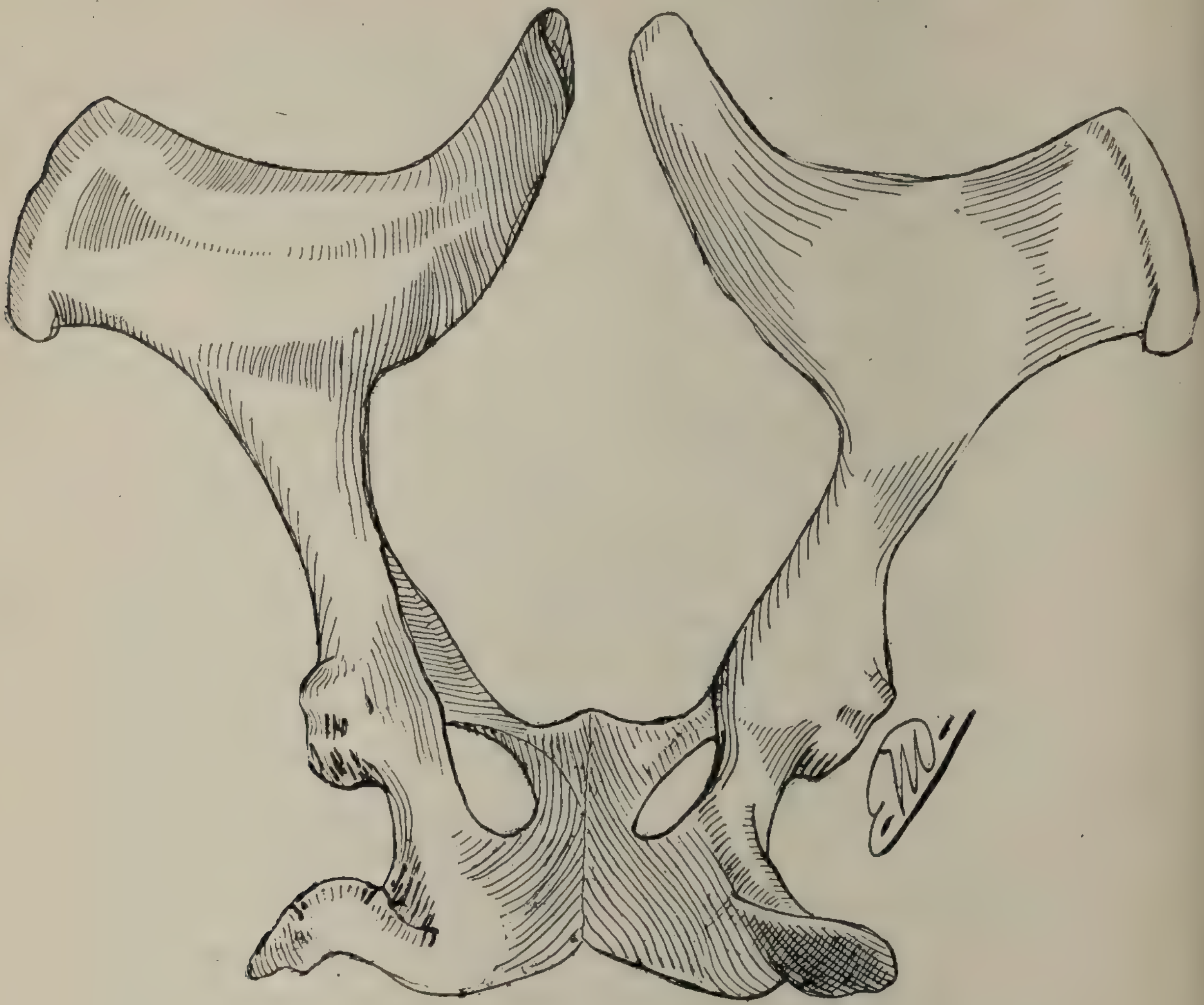

FIG 21.
NORMAL PELVIS OF A MARE.

A. Tumors of the soft structures of the pelvis.
B. Pelvic osteophytes.
C. Pelvic constrictions.
D. Fractures of the pelvis.
E. Pelvic deformities.

(A) TUMORS OF SOFT STRUCTURES OF THE PELVIC REGION may be sarcomatous, cancerous or melanotic; the melanotic are generally found in old gray mares and when located around the rectum, vulva or vagina, or in the connective tissue surrounding the pelvic canal, they reduce the size of the opening through which the fœtus is removed and in some instances entirely obstruct the passage to the uterus. Tumors are often found in the vagina and os uteri of cows and bitches; and, occasionally in the mare; and when known to exist the true condition should be ascertained by a manual or digital examination, and if found to involve the cervex or completely close the anterior part of the vagina, the fœtus should be removed by Cæsarian section.

(B) PELVIC OSTEOPHYTES (OR OSTEOMATA).—Osteophytes located on the superior and lateral surfaces of the pubis or ischium are often serious obstructions; and, those that involve the shaft of the ilium (Fig. 22), especially when they are located in the lateral walls of the pelvic cavity. The presence of such bony growths are not common in the mare, excepting in those that have recovered from fractures of the pelvic bones (Fig. 24); in the cow the condition is more common, and is

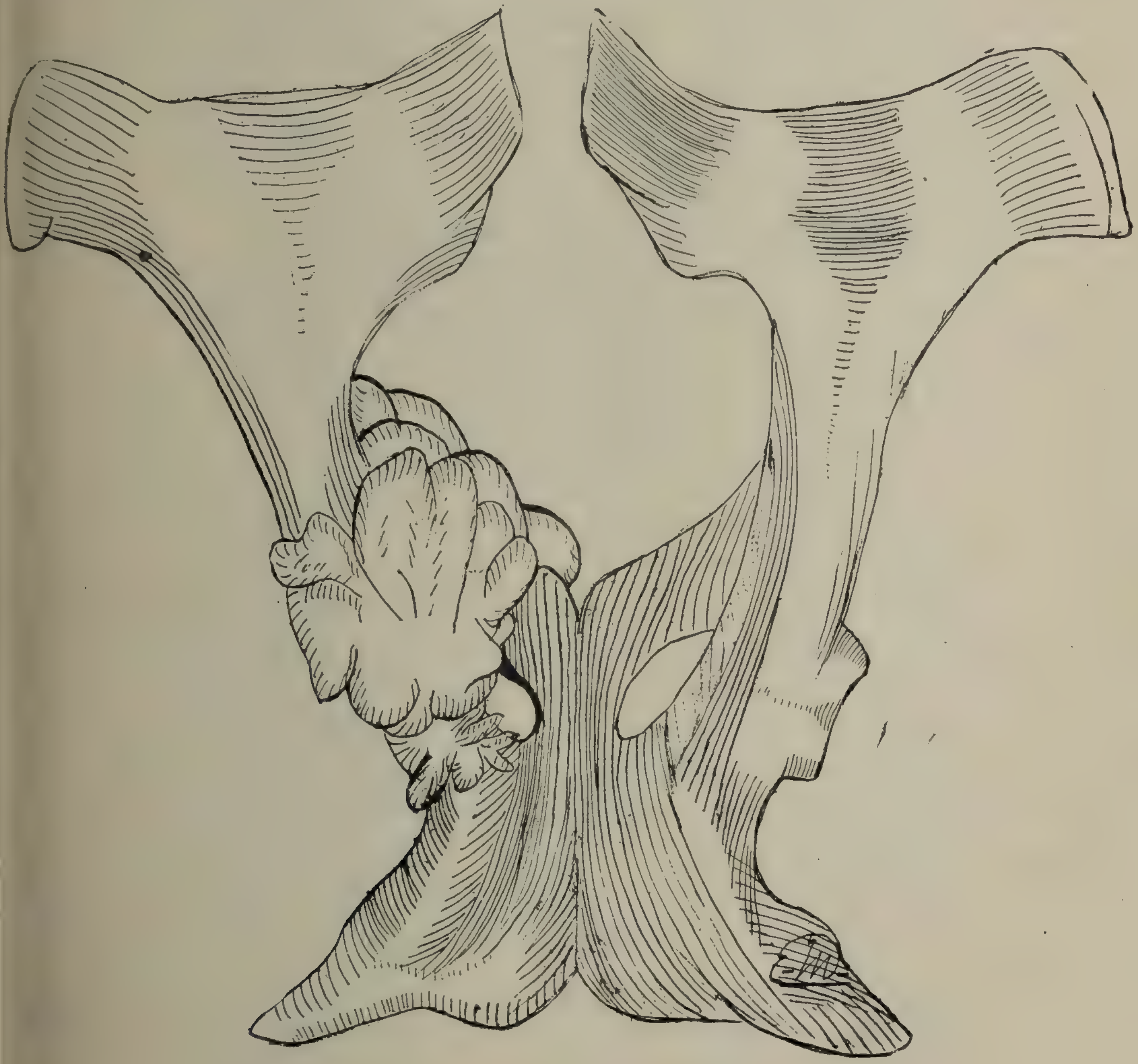

FIG 22.

PELVIC OSTEOPHYTE RESULTING FROM TRAUMATIC COXITIS.

still more frequently observed in the bitch; in some instances these osteomata do not make delivery impossible, but difficult, although when they obstruct the passage and make parturition impossible the fœtus must be removed otherwise. In the mare all other means of delivering the fœtus must be attempted before resorting to Cæsarian section, but in no case should the operation be deferred until the patient is exhausted and unable to withstand the surgical shock.

(C) PELVIC CONSTRICTIONS.—It is seldom that these constrictions, without fœtal complications, demand surgical interference; if all other conditions are normal delivery is generally possible though difficult, but when complicated with malpresentations or monstrosities they are serious conditions. This conformation is often confined to certain breeds and usually consists of a general reduction of all dimensions of the pelvis; however, careful observations have revealed to the obstetrician several varieties of these constrictions, which for our purpose they shall be considered as follows, viz.:

(*a*) General constriction of the lumen of the pelvic canal.
(*b*) Constriction of sacro-pubic diameter.
(*c*) Constriction of the transverse diameter.

(*a*) *General Constriction* of the lumen of the pelvic canal is usually confined to certain strains of domestic animals and is marked by a reduction in the size and the change in the conformation of the bones that form the skeleton of the pelvis; the constriction is such that it uniformly reduces all the diameters of the pelvic canal and invariably is the cause of maternal dystokia and when associated with some fœtal abnormality may make parturition impossible.

(*b*) *Constriction of the Sacro-Pubic Diameter.*—The cause of this reduction may result from an abnormal position of the pelvis; such as in improper inclination; or, a depression of the anterior portion of the ilium. The condition may also result from an abnormal conformation of the sacrum; *e. g.*, the posterior extremity of the sacral portion of the vertebra may be depressed (*kyphosis*); or the entire bone may be depressed; besides there is another, though not very common in domestic animals, but deserves to be mentioned in this connection; this is a curvature of the sacrum which directs its posterior extremity to one side (*scoliosis*); it may be caused by a contraction of the muscles of one side and is generally of a rheumatic origin (*scoliosis rheumatica*), although in some cases the condition is osteopathic.

(*c*) *Constriction of the Transverse Diameter.*—The cause of this constriction is about the same as those mentioned above and are generally common to certain breeds; in such constrictions the lateral walls of the pelvic canal approximate, either by the change in the conformation of the pubis and ischium, or by their abnormal size.

Animals of this conformation should not be used for breeding purposes, for either of the above mentioned conditions increases the danger of dystokia and especially when bred to large males.

(D) FRACTURES OF THE PELVIS.—The most common fractures of the pelvis are those of the external angle of the ilium, and the least that of the two pubes and ischia. In the horse, a fracture of the ischium often results from a fall or a kick; and occasionally a fracture of the shaft of the ilium (Fig. 24). which is usually done by crushing. Pelvic fractures in general are caused either by a fall, a blow, or by crushing; and as there is no means by which they can be placed in their normal posi-

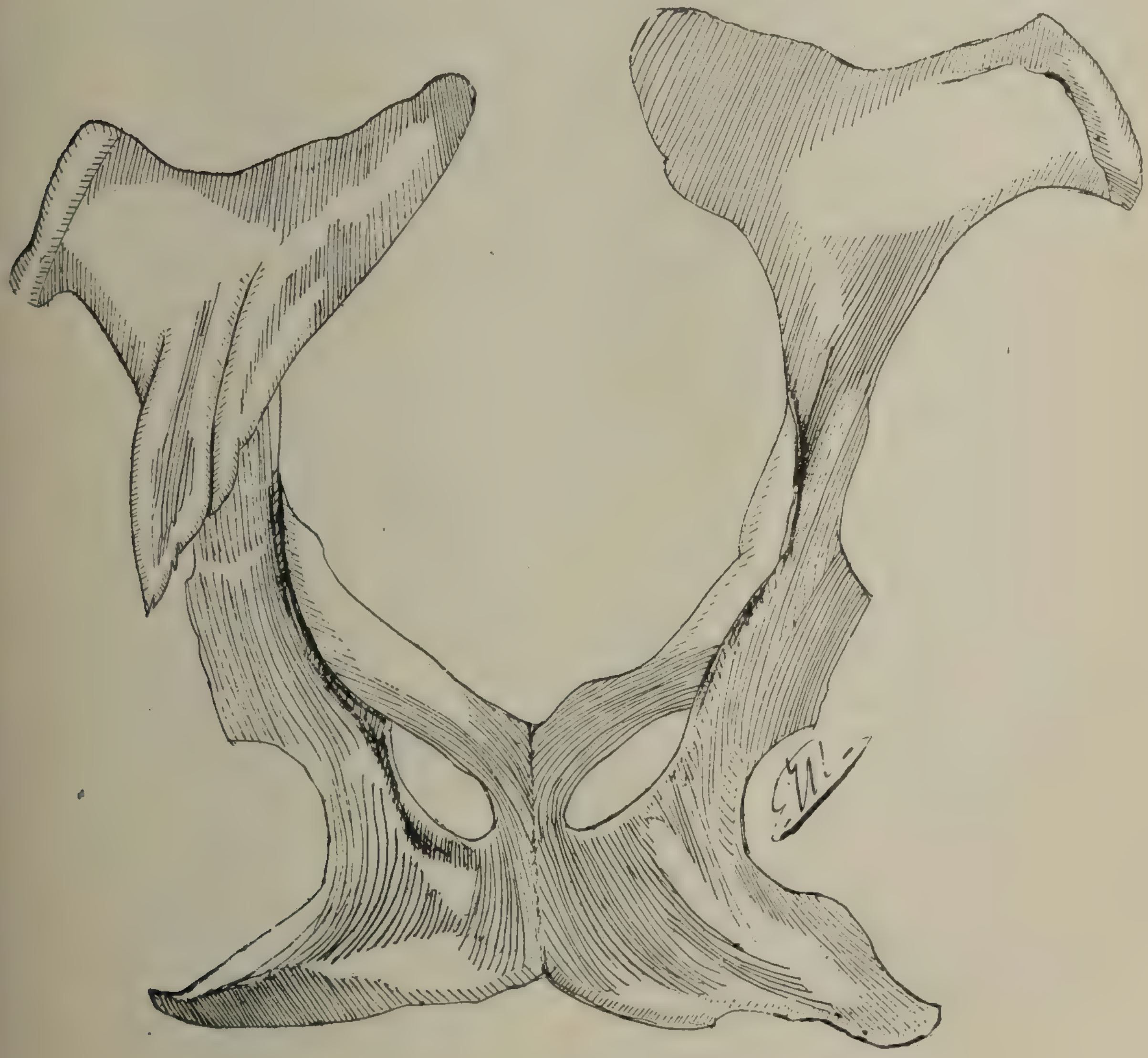

FIG. 24.
FRACTURE OF SHAFT OF THE ILIUM.

tion, the union results in an abnormality which can be detected by a depression of the external angle of the ilium or croup; or, by a vaginal or rectal examination and in many cases the diagnosis can be confirmed by a history of the case. Animals (female) that have had a fracture of the pelvis should not be used for breeding purposes without ascertaining whether the dimensions of the pelvic opening have been reduced or not.

(E) PELVIC DEFORMITIES.—Although pelvic deformities are not so common in domestic animals as in the female of the *genus homo*, we do, however, recognize the following varieties, viz.:

(*a*) Congenital deformities.
(*b*) Anomalous deformities.
(*c*) Accidental deformities.
(*d*) Lordosis and kyphosis.

(*a*) *Congenital Deformities* are those that exist from birth and in domestic animals are generally confined to certain strains

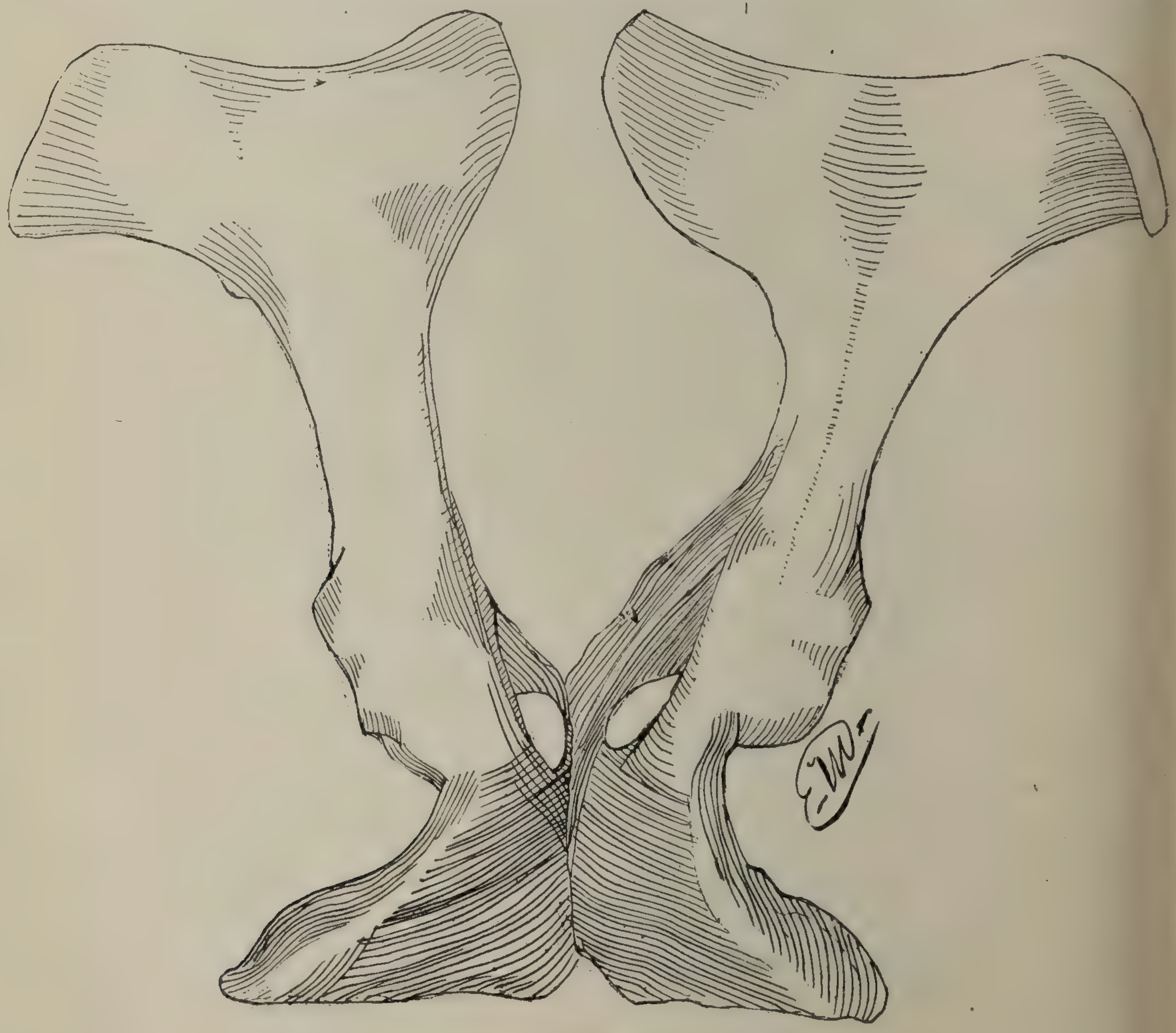

FIG. 27.

AN ANOMALOUS PELVIC DEFORMITY.

that have been improperly or carelessly bred; they are usually marked by a narrow pelvis, sharp croup and a depressed external angle of the ilium. Animals of this conformation are very unfavorable subjects for breeding purposes, because dystokia usually accompanies parturition.

(*b*) *Anomalous Deformities* of the pelvis are due to an abnormal development or the non-development of the bones that surround the pelvis. (Fig. 27.) This condition is more common in dogs and pigs than in large animals, and the exciting cause of this deformity is usually rachitis, osteomalacia, osteomyelitis, ostitis or osteoporosis. *Ostempyesis* may cause a condition that will interfere with parturition, especially when the inflammation extends into the soft structures surrounding the pelvic opening. Animals suffering from osteomalacia or rachitis may be affected with an abnormal curvature of the bones (*osteoclampsia*), especially when the sacrum is involved; when it is depressed at its anterior extremity (lordosis) the condition is not so serious as when the posterior extremity is depressed. Any disease of the bones of the pelvis may alter their relation; arrest their development; or change their form to such an extent that it will so lessen the size of the pelvic opening that parturition is impossible.

(*c*) *Accidental Deformities.*—Animals that have had fractures of the bones of the pelvis are generally unfit for breeding purposes, but all deformities resulting from such accidents do not make parturition impossible; a fracture of the external angle of the ilium may change the relation of the bones sufficiently to cause dystokia and yet not require Cæsarian section; a fracture of the shaft (Fig. 24) is often more serious; and those of the pubis and ischium which reduce the size of the pelvic inlet are the most serious obstacles in parturition.

(*d*) *Lordosis and Kyphosis.*—Saddle-backed animals in which the deformity involves the sacrum are sometimes unfit for breeding purposes, especially when the sacrum is greatly depressed and reduces the sacro-pubic diameter of the pelvic outlet; this, however, is not a very common condition and one that is easily determined by a rectal or vaginal examination.

Arched-backed animals (*kyphosis*) that have an abnormal position of the sacrum may also reduce the size of the pelvic opening and cause maternal dystokia, and in such cases the posterior extremity is depressed and reduces the lumen of the canal; this conformation is always indicated by the position of the croup. Both of the last mentioned conditions when complicated by fœtal abnormalities are serious; and the true conditions should be ascertained, and if the life of the mother can be saved by embryotomy the importance of the operation should not be overlooked by the obstetrician; and should the patient survive it should never be again used for breeding purposes.

2. MALPRESENTATIONS.—Parturition is sometimes rendered difficult by the fœtus being in such a position that it can not pass through the pelvic outlet. This difficulty is more common in quadrupeds than in bipeds. The anatomical difference of the pectoral arch adds to the difficulty resulting from an anterior malpresentation. The dorso-sternal diameter of the thorax is longer; the motion of the scapulo-humeral articulation is more limited; and the rotation of the anterior limb is much less in quadrupeds than in bimana. The difference resulting from this skeletal and muscular peculiarity of domestic animals adds to the difficulty in rectifying these malpresentations. The posterior malpresentations are fully as difficult to rectify as those already mentioned; the increased length of the longitudinal axis of the fœtus often makes mutation impossible. Transverse presentations are often very troublesome, especially the dorso-lumbar, when accompanied with some maternal deficiency; these complications must be handled judiciously, and when mutation is impossible the obstetrician must resort to the course indicated. All malpresentations must be rectified by retropulsion and either rotation or version; but, if this is impossible the fœtus must be removed either by embryotomy or Cæsarian section.

3. MULTIPARITY.—Multiple pregnancy in uniparous animals may in some cases be the cause of some form of dystokia, or accident common to pregnancy; such as rupture of the uterus (*hysterorrhexis*), or hernia of the uterus (*hysterocele*). These accidents are not confined to multiparity, but nevertheless are sometimes associated with it; but dystokia, however, frequently occurs in multiparity. It is not an uncommon thing to find a suspension of labor after the delivery of the first fœtus when uniparous animals bear twins; and, when such suspension is continued for any length of time, the death of the fœtus retained most invariably follows; however, there are exceptions to this; for example, when each fœtus is enveloped in its own fœtal membrane, it can remain in the uterus after the expulsion of the first one until the uterus has regained its tenacity and physiologically prepared itself for the second expulsion; but, if the fœtuses are enveloped in a common

fœtal membrane, the delivery of the first fœtus usually interferes with the distribution of nutrition to, and the removal of excretions from the remaining fœtus, which will soon cause its death. In studying this form of pregnancy we recognize the following varieties of multiparity, viz.:

(A) Isolated.
(B) Associated.
(C) Inclusive.

(A) *Isolated Multiparity.*—This variety of multiparity is that in which each fœtus has its own fœtal membranes. When the condition is such, one or more may be retained indefinitely after the delivery of the first fœtus. We do not mean, however, that they can be retained for weeks or months as in superfœtation, but for a reasonable length of time (hours or even a day or two) after the birth of the first. In multiple cases of this variety, it frequently happens that the fœtuses are unequally developed, and this unequal development often leads to the death of one of them, either caused by compression resulting from the excessive development of the other or the unequal distribution of the blood supply. If they are equally developed each fœtus is generally smaller than ordinary, and parturition is usually easy if not accompanied with other complications; but, numerous complications may be associated with this condition that may require surgical attention, and the course adopted should be governed by the indication, but surgical interference should not be delayed until the vitality of the mother has been so impaired that it could not withstand the shock.

(B) *Associated Multiparity* includes that variety of multiparity in which all fœtuses are found in one fœtal membrane common to all of them, occurring in the uterus at one time. In such instances the delivery of one fœtus requires the immediate removal of the remainder. When the placenta is common to all, they are generally equally developed, and if the presentation is not complicated beyond correction, delivery is usually comparatively easy; but, if unequally developed and attended with malpresentations that cannot be rectified, the condition is more serious; however, these cases should not be subjected to Cæsarian section without exhausting all possible means to rectify the condition.

(C) *Inclusive Multiparity* is not a common condition, at least those examples which are completely enclosed in another fœtus. Occasionally an undeveloped fœtus may be found enveloped in a larger one, and sometimes one is found only partly embedded in the other (*monstrosity*). This condition of things, though not very common, may be the cause of much trouble in delivering the fœtus, especially when the fœtus is large or the presentation faulty; and, if the conformation of the mother is such that parturition is impossible, it is advisable to remove it by surgical means.

4. MONSTROSITIES.—The term monstrosity is generally applied to a fœtus that presents some defect in its conformation; the condition may be organic, anomalous or pathological, and may involve a part of or the entire organism of the fœtus. The subject of monstrosities to teratology, which is the part of morphology that treats of the deviation in the development of embryos, has been well studied and thoroughly presented by Gurlt, a noted German veterinarian, and Geoffroy Saint-Hilaire, an eminent French zoölogist and comparative anatomist. Both of these authors have given to the profession a complete classification of these abnormalities, which can be used to a good advantage in the study of obstetrics; but, for our purpose we shall divide them into but two classes, viz.:

(*a*) Single monstrosities caused by excessive growth.

(*b*) Monstrosities resulting from the union of fœtuses.

(*a*) *Single Monstrosities caused by Excessive Growth* of the fœtus may extend through the entire body (*macrosomia*), and have a well developed symmetrical body, or may consist of an excessive development of any region, such as an abnormal development of the head (*megalocephalus*); however, one abnormality is usually accompanied by another or even more: *e.g.* an abnormal development of the head with an abnormal heart; or, the non-development of some portion of the body with the abnormal development of an organ. This condition (*macrosis*) of the fœtus, whether local or general, is frequently the cause of dystokia, and when complicated by some maternal abnormality or deformity, may make delivery of the fœtus impossible.

(*b*) *Monstrosities resulting from the Union of Fœtuses.*—The most common monstrosities of this class are those with two heads (*cephalodidymus*) (Fig. 28); and those with a double posterior extremity and but one head (*dipygus*); another very common example of these consists of a single head with a double trunk and posterior extremity (*cormo-melodidymus*); besides these double monstrosities, there are a number of triple (*trigeminal*) that are occasionally found in domestic animals; the most common of these triple unions are those with

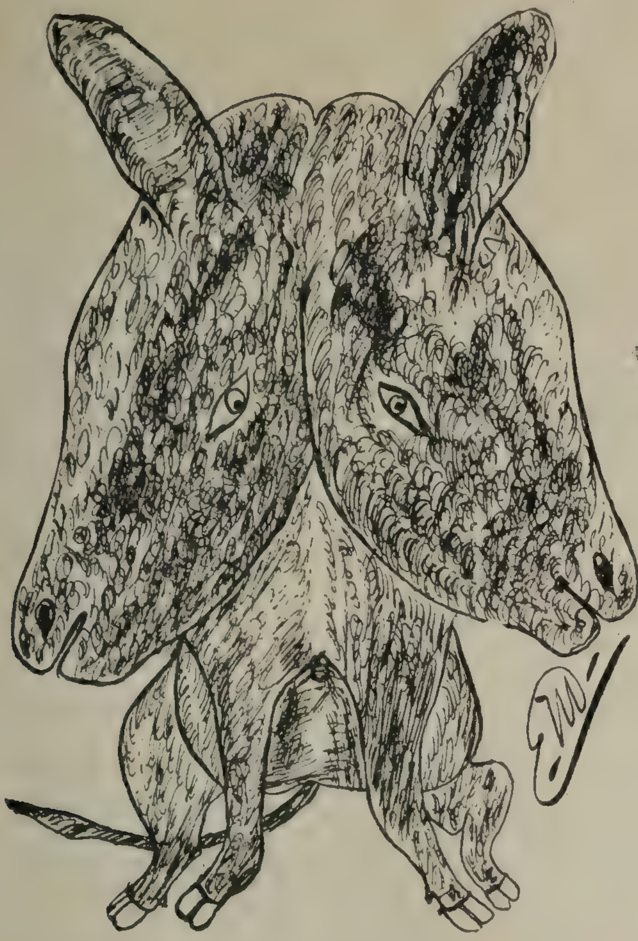

FIG. 28.

SYNCEPHALIAN MONSTROSITY, FROM THE McKILLIP OBSTETRICAL CLINIC, JANUARY, 1899.

three heads (*cephalotridymus*), and those with three bodies (*somstotridymus*). There are a number of other varieties which the veterinarian frequently finds, that are caused by the union of fœtuses, which cannot be delivered even by embryotomy. Most of these monstrosities are larger than a large fœtus; this, with their conformation makes it impossible to pass the fœtus through the pelvic outlet; and to dissect them while in the cavity is a difficult procedure; therefore, the most appropriate method of removing them is by Cæsarian section. When the veterinarian has ascertained that the fœtus is a monstrosity, the operation should not be delayed; the chances of recovery from such an operation are diminished by deferring it. *Procrastination deprives the surgeon of success* in such instances.

5. PSEUDO-PREGNANCY.—This is a term that is applied to an anomalous development of some structureless object in the uterus, which is a result of conception. To class tumors of a cancerous or sarcomatous origin as pseudo-pregnancy, would not be considered correct by obstetricians; but, to determine to a certainty whether the condition resulted from conception or not is often difficult, unless the animal is one that is never left

without an attendant. The conditions that may be taken for pseudo-pregnancy may be named as follows, viz.:

(*a*) Uterine cysts or moles.
(*b*) Hydrometra.
(*c*) Uterine tumors.

(*a*) *Uterine Cysts or Moles* may be caused by an early degeneration of the embryo encased in its enveloping membranes. This condition is not very common in mares; occasionally observed in cows and frequently in sows. They may vary from 10 centimeters to 20 or 30 centimeters in diameter. Those that we have observed upon post-mortem were in animals that suffered no inconvenience from the condition; but should such a structure be suspected as being the exciting cause of some systemic disturbance it should be removed.

(*b*) *Hydrometra* is a condition characterized by the presence of fluids in the uterus. This occurs more frequently in the bitch than in the cow or mare. The character of the fluid may vary from a thin transparent serous fluid to a thick purulent semi-fluid, and as it collects the uterus becomes distended and the abdomen enlarges. It is seldom that the fluid remains in the uterus for more than one-half of the period of gestation without some or all of it being expelled; in such cases the condition can often be relieved without surgical interference, but when the walls are involved they become œdematous and thickened; and, even if the embryonic structure is expelled, the condition may persist; medication may prove useless; injection of antiseptics or astringents into the uterus may be ineffective; and, consequently, there remains no other resort but surgical interference. This, however, should not be classed under Cæsarian section, for in such cases the fœtal structure may have been expelled; but occasionally part of it and the fœtal membrane becomes organized and attached to the walls when their removal by the vaginal route is impossible. To curet the uterus of a quadruped through the vagina is not a practical procedure; therefore the better plan is to proceed as in Cæsarian section; remove the fœtal membranes and all abnormal structures, and curet the uterus and irrigate it thoroughly, then close the incision properly; but, if the pathological condition is such that there is danger that this treatment will prove ineffective, the uterus should be removed (*hysterectomy*).

(*c*) *Uterine Tumors.*—Tumors that involve the uterus may be found in any part of it, and when of extreme size may cause an external appearance resembling pregnancy, and when the condition cannot be ascertained to a certainty without surgical interference it is advisable to proceed as in Cæsarian operation.

6. EXTRA-UTERINE PREGNANCY.—In this form of pregnancy the fœtus is developed outside of the uterus. There are several varieties of this form of pregnancy and they are generally named according to their location. Dr. Fleming, in his work on obstetrics, gives a thorough classification of extra-uterine pregnancy and carefully describes each form; but for our purpose we shall not study them so minutely, but will consider the following classes, viz.:

(*a*) Abdominal pregnancy.
(*b*) Ovarian pregnancy.
(*c*) Tubal pregnancy.
(*d*) Interstitial pregnancy.

(*a*) *Abdominal Pregnancy* is that form of gestation which is characterized by the development of the fœtus outside of the uterus and in the abdominal cavity. The symptoms of this form of pregnancy are varied, modified and often misleading. In the early development of the fœtus and while the fœtus is still alive, surrounded by the fluid enclosed in the fœtal membranes, the abdomen may appear distended, as in intra-uterine gestation; but, when the fœtus is dead and the fluids are absorbed, the abdominal distension may appear only in the region of the fœtus, which may appear round, and when manipulated convey the impression of being a large indurated mass more or less fixed. This condition is not very common in large animals, but is found frequently in dogs and pigs; and should the condition interfere with the function of the viscera or impair the health of the animal, it should be removed.

(*b*) *Ovarian Pregnancy.*—It is sometimes very difficult to determine whether the fœtus is located in the ovary (Fig. 29-8) or the abdominal cavity outside of the ovary. As it develops its weight causes the ligament of the ovary to elongate and allow the embryonic structure to descend as far as if outside of the ovary; but even if the condition cannot be determined, it should be treated as in abdominal pregnancy.

(*c*) *Tubal Pregnancy.*—In this form of pregnancy the ovum is developed in the Fallopian tubes (Fig. 29-10). When the ovum is developed in the tubes its enlargement prevents it from entering into the uterus and sooner or later it will cause some disturbance which will require its removal.

(*d*) *Interstitial Pregnancy.*—This form is characterized by the development of the ovum in the interstitial tissue between

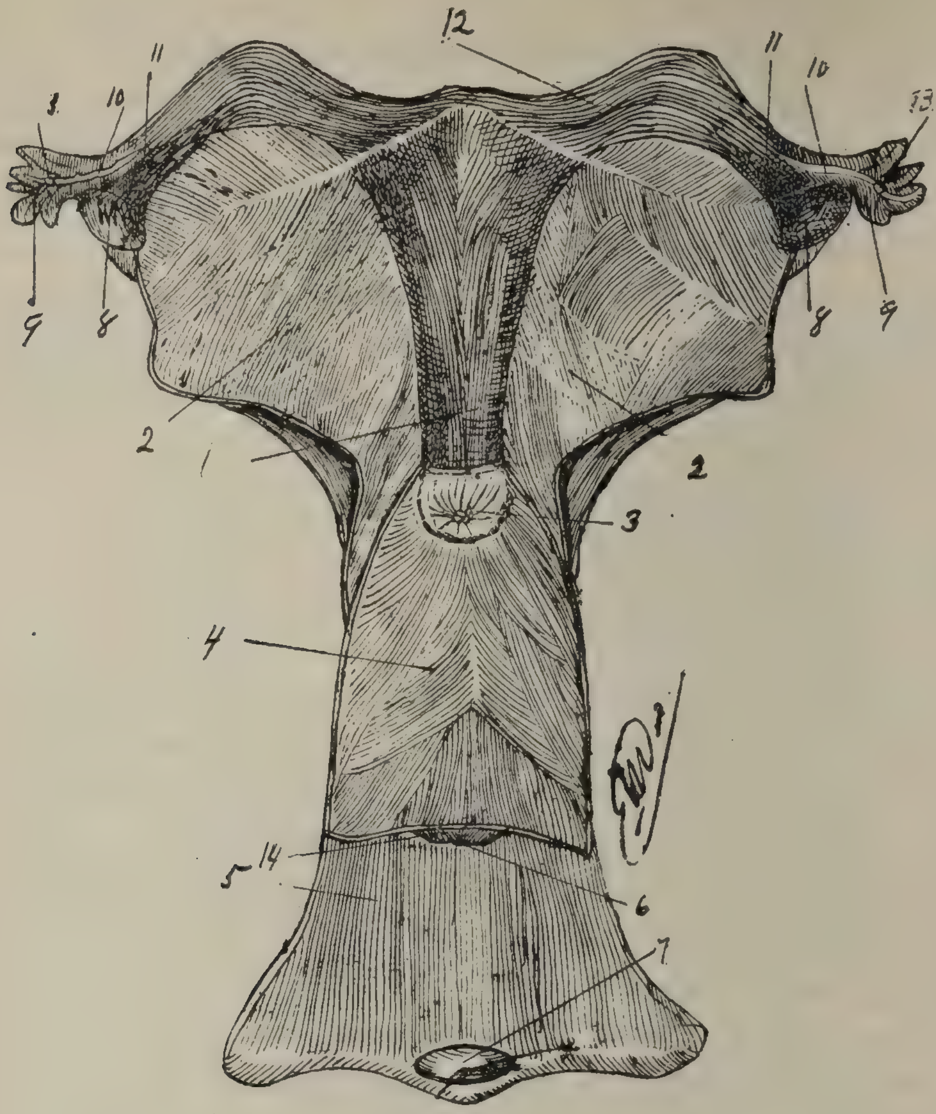

FIG. 29.

NON-PREGNANT UTERUS.

1, Body of uterus; 2 broad ligament; 3, os uteri; 4 vagina; 5, vulva; 6, meatus urinarius; 7, clitoris; 8, ovary; 9, fimbriated extremity of Fallopian tubes; 10, Fallopian tubes; 11, ligament of the ovary; 12, horns of uterus; 13, osteum abdominale; 14, fold of mucous membrane.

the coats that form the walls of the uterus or Fallopian tubes. As a matter of course a fœtus thus located cannot be removed without an operation. This, however, is not a very common occurrence, but when thus developed are generally located in the interstitial tissue of the Fallopian tubes (Fig. 29-10) or the cornua of the uterus (Fig. 30-e). The operation for removing embryonic structures thus located does not require the uterus to be opened; only the outer coats are incised and the structure removed. The remainder of the operation should be such as the indications demand.

7. RUPTURE OF THE UTERUS.—Rupture of the uterus is an accident that frequently occurs during parturition. It may be caused by the operator in his attempt to rectify a malpresentation in order to facilitate delivery; it also may be caused by the fœtus perforating the walls of the uterus; or it may result from

some pathological condition of the walls of the body (Fig. 30-a) which weakens them to such an extent that they cannot withstand the tension brought upon them by the contractions of the organ during parturition. Besides a complete rupture of the walls there should also be taken into consideration a partial rupture of them ; such as the laceration of the mucous membrane and part or all of the muscular coat, forming a kind of hernia. Either of the above mentioned conditions may make parturition impossible ; but when the walls are completely ruptured the condition is serious ; the fluid in the uterus will pass through the opening into the peritoneal cavity and cause an inflammation (*peritonitis*) if the cavity is not opened and irrigated thoroughly. Hæmorrhage is a factor that must not be overlooked when the uterus is ruptured, even if the fœtus is removed through the vagina. When the rupture is complete and the fluid of the uterus has escaped into the abdomen the only course to pursue is to open the cavity ; remove the fœtus ; suture it ; irrigate the cavity and close it.

8. TORSION OF THE UTERUS.—This is a condition that is difficult to diagnose and one that may occur frequently in large domestic animals. It consists of a twist of the uterus on its longitudinal diameter ; the twist may be partial or complete, usually however it is only partial. Torsion generally follows colics in animals that are in the last month of pregnancy ; or, those that have been cast or fallen during the period mentioned. When the condition cannot be rectified by the common means usually adopted by obstetricians the operation in question should be performed.

Operation.—This operation is generally undertaken with one of three objects in view, viz. :

1. To save the life of the fœtus when the mother is beyond recovery.

2. To save the life of the mother when the fœtus is dead or deformed.

3. To save both mother and fœtus.

1. *To Save the Life of the Fœtus* when the mother is beyond recovery. When the patient is in such a condition that it cannot stand the shock that accompanies such an operation, or when exhausted or injured to such an extent that it cannot live and death is inevitable, the obstetrician's effort should be directed to the life of the fœtus.

The patient should be cast and placed in a dorsal position, a crucial incision made in the floor of the abdomen, the uterus incised and the fœtus removed, and as soon as this is accomplished the parent should be put to death.

2. *To Save the Life of the Mother* when the fœtus is dead or deformed. In this the patient must be carefully anæsthetized, and placed in the left lateral recumbent position, with the right posterior limb extended backward. The hair must be clipped and the surface surrounding the place chosen for the incision shaved; the incision is made through the skin and abdominal muscles, which is followed by incising the peritoneum, using all the precautions possible to prevent the viscera from being injured.

The incision should be made at a point located from 7 to 10 centimeters below the right external angle of the ilium, and extend downward and forward for a distance of 15 to 20 centimeters, as the case may require. The uterus (Fig. 30-a) is then brought to the opening into the abdomen and carefully incised, with all the necessary precautions taken to prevent the fluid from entering the peritoneal cavity; the fœtus and fœtal membranes are then removed and the uterus sponged and thoroughly washed with antiseptics; following this the incision is closed by applying the Czerny-Lembert suture. (*See Intestinal Sutures.*) The treatment of the external incision and the after-care should be the same as mentioned under CELIOTOMY.

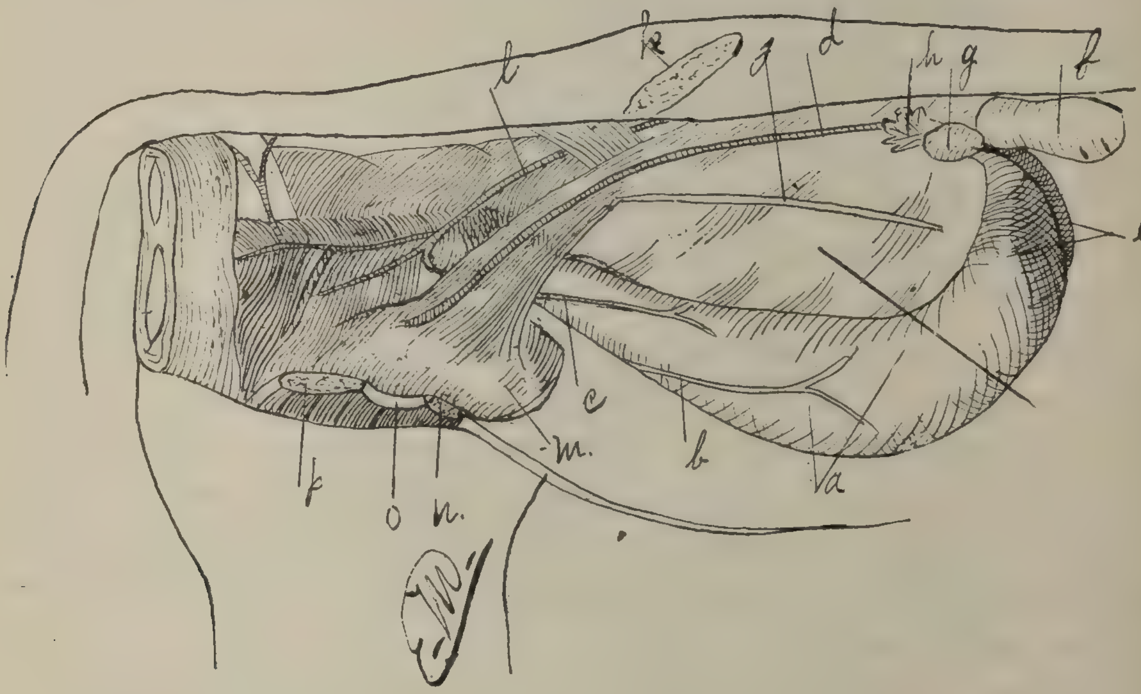

FIG 30.

POSITION OF UTERUS OF THE MARE.

a, body of uterus; b, uterine artery: c, uterine branch of vaginal artery; d, ureter; e, horns of uterus; f, left kidney; g, ovary; h, fimbriated portion of Fallopian tube; i, broad ligament; j, round ligament; k, ilium; l, internal pubic artery; m, bladder; n, pubis; o, obturator foramen (section of); p, ischium.

If the patient is a mare she should not be allowed to lie down for three or four days, and, if necessary, an improvised sling should be applied in such a manner that the weight will not rest upon the abdomen. The cow may be treated in the same way; and when either are allowed to lie down they should lie upon the left side. In the bitch, the incision may be made n the median line, and the procedure following this step is much the same as mentioned above. After the operation she should be muzzled and secured in such a manner that she will be unable to interfere with the stitches.

3. *To Save the Life of the Mother and Fœtus.*—When the operation is performed with this object in view, the surgeon's efforts must be directed to both mother and fœtus. The technique of the operation is the same as when only the life of the mother is at stake; the abdomen is opened in the same manner and the uterus opened in the same place, but with special care not to injure the fœtus, and when removed it should be given to an attendant instructed to ligate the umbilical cord and give it the care and attention required. The incision into the uterus and the one in the abdominal wall must be carefully sutured as oon as the fœtus and its membranes are removed and the uterus properly cleaned. Strict aseptic precautions must be taken in every step; hæmorrhage must be completely arrested, arteries igated, arterioles taken up, and torsion applied and capillary hæmorrhage arrested by irrigation before the sutures are applied. The sequelæ that may follow can be expected in the following order: the first is shock, and will require considerable attention; econd is secondary hæmorrhage, which is generally very serious n large animals and must receive attention as soon as observed; hird, peritonitis and metritis, which require cold packs; and besides these there are a number of other conditions, such as ocal infection, septicæmia, and pyæmia, which often follow the peration and must be treated as the indications demand. (*See Celiotomy, After-Treatment.*)

This operation was successfully performed by C. J. Rix, M. R. C. V. S., Royal Veterinary College, London, upon a bitch on une 22, 1900. Two pups were removed; one was injured in ttempting to deliver it through the natural passage and died; but the other one and and the mother survived. (*See Clinical Articles, The Journal of Comparative Pathology aud Therapeuics, September, 1900.*)

SURGICAL ITEMS.

Oxychlorine.—A new antiseptic compound containing 56 per cent. by weight of oxygen and 6 per cent. by weight of chlorine, feebly united with potassium, barium and sodium, is being introduced to the veterinary profession by the United Pharmacal Company of Chicago, under the above proprietary name. Physically it resembles the granular salines, and like them is freely soluble. It is recommended both in solution and as a dry powder for the treatment of suppurating wounds and indolent lesions of any kind. The theory upon which its efficacy is based, and which seems to be borne out by observation, is that in the presence of living tissues the compound gradually liberates its oxygen and chlorine; the former entering and thus nourishing the tissues, while the latter disinfects them. The union of the oxygen and chlorine with the other elements is said to be so unstable that when the natural affinity of the tissues extracts the oxygen from the compound the chlorine is liberated in the proportion of 6 parts to 56 parts of oxygen, thus preventing cauterization. The manufacturers make the strong claim that oxychlorine will promptly disinfect as well as nourish any infected wound without destroying a single cell. It is non-poisonous as well as non-irritant.—(*L. A. M.*)

That the close relation of the velum and larynx of horses is a factor in the cause of many laryngeal coughs is demonstrated by the fact that staphylotomy performed upon two horses immediately cured their cough of several years' standing. Staphylotomy consists of a division of the soft palate in the median line from its posterior border to the palatine bone. (See Williams-Pfieffer's "Surgical Operations.")—(*L. A. M.*)

If any veterinarian has ever substituted vasectomy or resection of the spermatic cord for castration, we would be pleased to report a correct statement of the operation and its results in connection with castration, which will appear in the "Department of Surgery" in some future number of the REVIEW. Due credit will be given each operator for his effort.—(*E. M.*)

When the abdominal cavity or the uterus is irritated after abdominal operations, there is danger of poisoning from toxic substances such as carbolic acid or bichloride of mercury used as antiseptics. The best solution to employ in this procedure is sterilized water or a saline solution at a temperature not exceeding 110 degrees Fahrenheit.—(*E. M.*)

AT a recent veterinary association meeting twelve members handed the Secretary their subscriptions to the REVIEW. This is recorded for the reason that it is exceptional, while it should be the rule.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By Adolph Eichhorn, D.V.S., New York City.

Sugar and Glycerin as Ecbolics in the Practice of Obstetrics.—An instructive article recently appeared in the *Progrès Agricole* in which Veterinarian Elvire discussed the important properties which sugar and glycerin possess, especially when used in indolent cases of parturition, and also in cases of retained afterbirth. The author mentions instances where the farmers, as soon as they noticed an abnormality in the progress of labor, began the use of one of these remedies, to hasten parturition. They administered these remedies chiefly in warm alcoholic drenches (wine, beer, whiskey), as their use had great influence, especially in the first stage of the expulsion, and when the appearance of the afterpains are delayed or unsatisfactory. The strong stimulating effect of sugar in uterine contraction is not as yet well known, but was also considered at the gynæological department of the University of Geuf. The author confirms this favorable and almost positive action in animals. The dose for horses and cattle is 100 to 200 grammes, in a solution with or without alcohol, to be given especially in cases where the first labor pains are weak, or where exhaustion of the animal is noticed; but there are many other demands for it in parturition where it can be used with great success. In cows and in other ruminants the solution is greatly lost in the different stomachs; therefore, it is advisable to administer the solution per rectum, which, previous to the injection, is to be emptied. Glycerin is given in the same dose; it is absolutely harmless, and it is advisable to saturate cotton in the solution, and fill the rectum with it in that way.

Treatment of Carcinomas with Electricity [*Dr. J. A. Rivière, Paris*].—At the International Congress of Medical Electrology and Radiology, which was held in Paris from July 27th to August 1st, 1900, Dr. Rivière, of Paris, reported the treatment of cancers, and claimed that the same can be cured through special mono and bipolaric streams of high tension. The judicious application of this stream brings about the following effects: (1) A thermo-electric-chemical influence, whereby the neoplastic tissues are thrown out; when the parasitic theory is admissible through its actinic rays, the micro-organisms and their toxins become annihilated. (2) A trophoneurotic curative action, which restores the vital processes to normal, at the same time favoring phagocytosis, whereby the general health becomes improved. The author adds that this special method of electric treatment cures and avoids the recurrence of the affection when applied in time. Further, he says, electricity remains the only applicable remedy in tumors of malignant character, which cannot be operated upon.—(*Berl. Thierärztl. Wochenshr.*)

THE USE OF SHELL MEMBRANE OF HENS' EGGS IN COVERING GRANULATING SURFACES [*Prof. Schüller*].—Up to the present time, wounds in which the covering over with skin in a natural way was retarded, the method generally used was transplantation. But there are cases where it is impossible to graft skin from the patient, and also where it is impossible to use the skin from other persons. For such cases the author recommends a compensation from the animal kingdom, which is always easy to procure in perfect and in an aseptic condition, and which is very easily applicable, containing undoubtedly epithelial material, and when used in the proper way for covering granulating surfaces depacts it in an extraordinarily easy manner. This is the shell membrane of a hen's egg. The employment of the shell membrane is as follows: After breaking the fresh egg and the eversion of the contents, the membrane is quickly detached from the shell in as large a piece as possible; care should be taken not to touch or crush it, and then applied with the internal side (the one facing the white of the egg), to the granulating surface, which was previously cleansed and thoroughly dried. After this procedure it is secured by a simple dressing consisting of gauze and cotton. It is not essential that the pieces of the shell membrane should cover or come in contact with the edges of the normal skin; the principal point is the firm adherence to the granulating surface. Antiseptic powders or liquids are to be avoided, as they will injure the young epithelia. The wound must be in a thoroughly aseptic condition, all infection removed, and naturally the granulation must be complete. In changing the dressing, which the author generally does in four days and sometimes sooner, the shell membrane is easily detached, under which is noticeable a whitish or blueish white epithelial layer. The pieces covering the edges of the skin generally adhere a little longer. This can be tried in veterinary practice, as there are many opportunities, especially among the smaller animals. — (*Berliner Thierärztl. Wochenshr.*)

A SPONTANEOUS HEALING OF A WOUND OF THE ŒSOPHAGUS [*Michalik*].—The author was called to see a foal with the history that it would not take any food and had suffered from a very bad dyspnœa for the last few days; also, a swelling made its appearance on the neck, which had in the meantime gotten soft, and was opened by the owner, followed by a discharge of pus mixed with food. On examination the author found the foal emaciated, with difficult rattling breathing. On the left side about 15 cm. from the larynx in the region of the jugular groove he found a hard swelling, having the size of a double fist, and on which a smooth incised wound of about 3 cm. was noticeable, which on exploration disclosed a cavity which contained well masticated food. He tried in every way possible to remove this mass of food, but could not do so successfully, as the cavity was too large. As the removal of the mass was only partial, the presence of pus could not be established. The œsophagus could not be reached on account of its distance. After deglutition it was noticeable that the cavity filled up with food, therefore he had either an abscess situated on the œsophagus and which caused the rupture of the œsophagus, or it may have been caused by the owner while opening the abscess and injuring the œsophagus; but taking into consideration the anatomical condition, this was considered quite improbable. The author did not seem to think a cure possible, and recommended the animal destroyed. But as the owner was anxious to try all that could possibly be done to save the animal, he recommended slow irrigations of the abscess cavity with a ½% solution of creolin several times a day, and a diet consisting chiefly of sloppy food. Two days later the owner came back with a report that the foal would hardly drink anything, and that all the liquid and food came out through the abscess opening. The author then recommended dry food to be tried, with the hope that the animal might be able to retain at least some of it. After three days an improvement was noticed. A large portion of the dry food was able to pass into the stomach, and only a small portion returned through the wound. A few days later the owner reported a complete recovery of the foal, and after 10 days all food, both liquid and dry, passed down through the œsophagus in a natural way. The swelling and the wound then kept getting smaller and smaller until all signs of it disappeared.—(*Deutsche Thier. Wochen.*)

"ERADICATION OF TUBERCULOSIS IN THE UNITED STATES OF AMERICA."—Under this heading the *Berliner Thierarzt.*

Wochenschr. contributes an extensive article, in which is described minutely the measures taken in the different States of our Union for the prevention and eradication of this malady among cattle. After discussing the importance of these measures, the article ends as follows: "All these facts are sufficient to prove that in the United States the danger of spreading of tuberculosis in cattle, and which also includes the health of human beings, are appreciated by the State and city officials, and by them an energetic fight was started to overcome this disease. It is evident that the United States in regard to this condition are a great deal further advanced than we. The measures of the States and these efforts of the larger cities should be appreciated in procuring their inhabitants milk free from the germs of tuberculosis. Would it be possible to introduce these regulations in our cities?" This ought to make us feel proud of ourselves, as it is another evidence that the advancement in veterinary medicine in this country and the education given in our schools is acknowledged and appreciated by our European colleagues. And, first of all, the credit for all this is to be given to the Bureau of Animal Industry, which in the last few years has done such marvelous work in regard to meat inspection and investigations of infectious diseases.

FRENCH REVIEW.

The Post-mortem Diagnosis of Rabies in the Dog [*By Prof. Nocard*].—This subject is of capital importance to the veterinarian, for upon its correctness depends the lives of those who have been bitten. When it is a dog dead after the natural march of the disease, the post-mortem ordinarily reveals signs which permit a conclusion of the existence of the disease; yet, even in this case, it often happens that the necroscopical signs are absent, and consequently if the veterinarian has not seen the dog while alive, and has not been able to follow the progress of the disease, it is impossible for him to tell with certainty if the dog was rabid or not. These negative results of post-mortem, exceptional when looked for in animals that have died from the disease, are far less frequent when searched in animals killed during the development of the disease. For instance, it is common not to find any of the ordinary signs of rabies at the post-mortem of dogs killed in public roads because they have bitten some one, animals or persons; and this fact is so much more serious that most often these dogs are entirely

nknown, and no information can be obtained upon their ways
f acting previous to the accident. To conclude from the ab-
ence of all apparent lesion to the non-existence of rabies, would
nean that the persons who were bitten need no treatment and
hey would be exposed to contract the disease. During the last
ew years several persons have died with rabies because the
egative result of the post-mortem have given them a false
ecurity. Then, again, if inoculation of the bulb will tell with
ertainty whether the dog was mad or not, this certainty is not
btained before fifteen or twenty days: it would be imprudent
o await the result of the inoculation to begin treatment, as in
he majority of cases it would be too late. For this reason, no
loubt, without having a sure mode of diagnosis, we never fail
o recommend the antirabic treatment, whose perfect innocuity
eeds no more proof. It can be easily conceived with what in-
erest veterinarians heard of the communications of MM. Van
ehuchten and Nelis, and with what enthusiasm they went to
vork, not to confirm the exactness of the facts advanced by
uch authorized specialists, but to find out in what measure the
nethod they recommend can be practically applied. If it was
rue that, hereafter, in a few hours, we could with certainty
nd in every case, tell that such suspicious dog is rabid or not,
he problem would be solved; numerous victims might be in
he future delivered from all the anxiety deriving from the fact
f having been bitten, as well as the loss of time, unnecessary
xpenses, etc. It was not possible to doubt the existence of
he lesions described by MM. Van Gehuchten and Nelis in
he cerebro-spinal ganglions of mad dogs; no more than there
ad been any expressed upon the truth of the alterations men-
ioned by M. Babes in the nervous centres; the high compe-
ency of those authors was a sufficient guaranty of the correct-
ess of their presence. But the questions might be asked:
1) If these lesions, constant in the mad dog, are special to
abies? (2) If they are not observed in other infectious
liseases in the nervous centres? (3) Lastly and specially,
f they exist, sufficiently defined, to allow any doubt, in all
eriods of the disease? It must not be forgotten that the saliva
f the dog is virulent from the beginning of the disease, even
efore it has manifested itself by the first symptoms which
nake its presence suspected. If not, the method of MM. Van
ehuchten and Nelis, so precious by its simplicity and its rap-
dity, would lose all practical importance; we would fall back
nto our uncertainty, and, as in the past, acknowledge the neces-

sity of immediate treatment for all those bitten by dogs onl
suspicions. The experiments carried out with that object b
MM. Cuitlé and Vallée, of the Veterinary School of Toulous
gave the following results: "Our researches," say these aut
ors, "have according to the indications of Van Gehuchten an
Nelis, been applied upon the plexiform ganglions of th
pneumogastric nerves. After fixation to the sublimate, harde
ing in a series of alcohol and in acetone, inclusion in paraffin
the thin sections were colored with polychrom blue of Unn
and differentiated in the 'glycerinœthromischung' of Grüble
In nine dogs dead with rabies, we have found the alterations
the nervous cells and of the endothelial envelopes described b
MM. Van Gehuchten and Nelis; even in the less altered part
of the ganglion, the envelopes were the seat of a marked leuc
cytar infiltration. To this date, we have not observed an
thing like it in the ganglions of healthy dogs or of those tha
have died with various diseases. But do those ganglionar
lesions establish themselves prematurely? Would they b
found in dogs killed during the course of the disease? Tha
was the most important question to solve, as it is specially i
those conditions that the diagnosis remains uncertain; it is a
most always dogs that are killed because they have bitte
some one and are brought to the veterinarian for post-mortem
and the researches of Nocard and Roux have proved that th
saliva is virulent, not only after rabies is confirmed, but 24 an
48 hours before the apparition of the first symptoms. Wit
the object of solving this serious question, we have inoculate
six dogs, taking care to make the infection as natural as po
sible. To this effect, each one of these animals had injected i
the semi-tendinosis muscle half a cc. of an emulsion mad
with the brain of a dog dead with *rage des rues* (street ra
ies); these dogs were to be destroyed at various periods of th
disease. To-day, 63 days after inoculation, three are *indemn*
the three others have become rabid, and more or less soon afte
the apparition of the first symptoms; they were destroyed. Th
results obtained are as follows: *Dog No. 1.*—Very old; dum
rabies after 17 days of incubation; killed 17 hours after th
apparition of the first rabid signs and at the very outset of th
paralysis. At the examination of the plexiform ganglions
the pneumogastric, all the cells are healthy; in few section
and in very rare places, little centres of pericapsular infiltr
tions are detected. *Dog No. 2.*—Raving rabies after 23 day
of incubation; killed after the first rabid signs were observe

he plexiform ganglions are entirely healthy. *Dog No. 3.*—2 days of incubation ; killed twelve hours after appearance of aralysis. Superb ganglionary lesions; half of the cells are estroyed; the whole ganglion is infiltrated with leucocytes. esides those we have examined the plexiform ganglions of a hepherd dog killed during an access of raving madness in hich he had bitten several dogs and sheep. The ganglionry lesions were insignificant: a little pericapsular infiltraon here and there; it would be impossible by the single exmination of the sections, to tell that the dog was rabid. Yet he diagnosis is clinically certain and inoculation of the bulb ave rabies to the inoculated rabbits. From these researches, I. Nocard concludes that the histological remains like the ecroscopical diagnosis. When the result is positive, which is he rule, in both cases, when the dog dies by the natural evoluons of the disease, one may affirm that the dog was rabid; ut when the result is negative, which is frequent, when the og is killed immediately after he has bitten, one cannot affirm hat the dog was not rabid; the diagnosis remains uncertain, nd the strict duty of the veterinarian is still to advise those hat are bitten to resort to Pasteur treatment.

Laryngeal Tumor in a Cow [*By M. Mathis*].—This nimal, about 12 years of age, had been abandoned by the wner as being in a state of advanced tuberculosis. She was uffering with loud roaring, much marked in inspiration, and uite weak in expiration; her respiration was now and then ccelerated, percussion of the chest gave an exaggerated resoance all over the lungs; auscultation of the trachea and rynx justified the localization of the roaring at the larynx; in stening to the chest nothing could be heard, no roaring nor ven the respiratory murmur. With these exceptions the anial is in most satisfactory condition. The diagnosis of tubercusis was discarded for want of symptoms and by the use of tuerculin; and that of laryngeal trouble, made out by tracheomy, which had to be performed for fear of asphyxia, was conmed, when previous to being killed the larynx was opened for the operation of arytenectomy and a tumor was discovered the right vocal cord, of non-tubercular nature, the size of a geon's egg, closing almost entirely the glottic opening, formed whitish fibroid tissue.—(*Jour. de Med. Vet. and Zoötechnie.*)

Dystokia in a Mare—Anterior Presentation, Hind egs Engaged in the Pelvis, Anterior Legs Absent [*By . Husson*].—" My mare is in labor and her fœtus is presented normally," said the owner when calling on the author. "The head and feet are present, but, notwithstanding all efforts, the fœtus cannot be delivered." On making his examination Mr. Husson by opening the vulva detected the point of the nose and the feet engaged in the pelvis, but in introducing his hand he soon found out that the feet belonged to the hind legs, the fore legs he could not trace. After pushing back the hind legs, the fœtus was delivered. It weighed 63 kilograms and had no fore legs. Their skeleton consisted of only one bone, the scapula, each one of them ending in a stump, except on one, where a small articulated piece existed, representing the humerus.—(*Jour. de Med. Vet. and Zoötechnie.*)

ECTOPY OF THE RIGHT KIDNEY IN A SOW [*By M. X. Gavarry*].—This peculiar condition is not as well known in veterinary medicine as it is in human. This case was observed in a three-year-old sow, in proper condition of fat. The left kidney was in its normal position, the right was placed behind about twenty-five centimeters from it. The afferent and efferent vessels had their normal length ; the right renal artery took its origin from the posterior aorta at the point where this divides to give off the iliacs. The right kidney was normal in weight and in size, and was surrounded by adipose tissue. During life the animal never showed any signs of illness or disturbance by the abnormality, nor was gestation or parturition ever disturbed by it.—(*Jour. de Med. Vet. and Zoötechnie.*)

CORRESPONDENCE.

A REPLY TO RESOLUTIONS OF CENSURE FORMULATED BY THE ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION (OF NON-GRADUATES), AND PUBLISHED IN THE OCTOBER NUMBER OF THE "REVIEW."

CHICAGO, Ill., Oct. 13, 1900.

"*Let him that is without sin cast the first stone.*"

With all our boasted evolution and moral progressiveness there still can be found large chunks of cussedness in human nature, particularly that form of it that prompted the words quoted above and uttered two thousand years ago, and I verily believe if that admonition had been addressed to the members of that committee on resolutions, every mother's son of them would have reached for a stone, for they cannot by any mode of reasoning familiar to them find a single flaw in their physical or mental make up; but it is surely a sad commentary on their intelligence to note the fact that they, a society of non-graduates, few if any of them eligible to practice under the act but for its time limit for registration, should be the first to throw stones at the Board for allowing so many of their kind within the fold.

To one not possessed with any sense of the ridiculous their professed solicitude for the elevation of the profession would be pathetic. How like Burns' "Holy Willie" they could set out the sins and iniquities of their competitors in practice and with what pathos they would recount the wonderful qualifications and righteousness of themselves, tearing the character of their neighbors to pieces in sneaking, unmanly letters, not one of which was supported by proper affidavits, and usually postscripted: "As a man we are good friends, and I wouldn't want my name mentioned, but it would be a shame to grant him a license." Uriah Heep was a saint compared to some of these men of good reputation and known truth and veracity in their actions towards their fellow practitioners. When instructed how to proceed in cases they wished to protest, they would answer the board by letters of abuse; they cry out there are too many of us. We agree with them. If the legislature had passed such a law ten years ago their association would have very few members and the State would have been much the better for it.

As to our "violation of the letter and spirit of the law." According to their idea of the letter of the law, "there would be more honor in its breach than in its observance." The spirit of the act, as shown by its time of grace to the non-graduate practitioner, did not intend to deprive any citizen of the State, who had been practicing the required time, of his right to earn a living for himself and family; it does intend that new comers shall have the proper qualifications before they be permitted to practice. In examining non-graduates after the time limit had expired, the Board only exercised its privilege to satisfy themselves that the candidate was as represented by his credentials. As to the requirements of the law in that examination, all candidates were so examined and marked according to the judgment of the examiner. To demand a strictly technical examination of old practitioners, non-graduates, on the subjects mentioned in the act, might be proper according to the wisdom of the members of the I. V. M. and S. Association, but it was not so construed by members of the Board, neither did we think that the spirit of the law called for the expulsion from the State of an old practitioner because he applied for a license a few days or weeks later than the members of the I. V. M. and S. Association. We have no doubt that the Board has been imposed on by false affidavits and misrepresentations, and that we have made mistakes of omission and commission, but if men of immoral character and bad reputations have been granted licenses it is due to the moral cowardice of the complainants, who, knowing these facts, did not take the proper steps to prevent it, but contented themselves by sending unmanly, sneaking, semi-anonymous charges against a neighboring rival in practice. The charge of monetary greed is about as well substantiated as the rest of it. Five dollars a day while on duty would be a tempting bait, and good reason for any crookedness to a member of the I. V. M. and S. Society, I have no doubt, but it is not considered an extravagant emolument to the regular practitioner who has paid for his education.

We would in all probability have ignored anything coming from that body, but that the profession at large might not be aware of the true standing of this society and confound its deliberations with the State Association of qualified veterinarians. For any personal reflections embodied in their resolutions, I forgive them, as "To whom little is given, little can be expected."

JAMES ROBERTSON, D. V. S.

SOCIETY MEETINGS.

MISSOURI VETERINARY MEDICAL ASSOCIATION.

The ninth annual meeting of this State Association opened at 9 A. M., Oct. 3, 1900, in the hall of the Board of Education building, St. Louis, Mo. The following veterinarians were present: Drs. E. J. Netherton, W. B. Welch, R. H. Carswell, T. V. Farmer, S. L. Shaw, E. Lee, S. Stewart, L. D. Brown, Chas. Doerrie, T. E. White, V. J. Andre, H. Hempelman, R. A. Kammerer, W. S. Cass, F. W. O'Brien, W. E. Martin, T. F. Arnold, T. J. Menestrina, L. M. Klutts, D. W. Elliott, S. E. Phillips, R. C. Moore, Chas. Ellis, H. Bradley, J. M. Phillips, B. F. Kaupp, G. A. Roberts, H. B. Piatt, M. McNally, E. J. Forman, D. C. Barnett, J. O. F. Price, W. H. Meadors, T. B. Pote, W. F. Heyde, C. Miller, J. W. Connaway and J. G. Slee. Among the guests were H. J. Waters, Dean and Director of the Agricultural College and Experiment Station of Missouri;

Alex. Maitland, member of State Board of Agriculture, and others.

The following veterinarians made application and were elected to membership: Drs. V. J. Andre, R. H. Carswell, T. J. Menestrina, E. J. Netherton, L. D. Brown, S. L. Shaw, E. B. Shaw, and D. F. Luckey.

The morning session was devoted to the discussion of State legislation. A bill was drafted and a committee appointed to push it in the next session of the State legislature. A committee from the Missouri Valley Veterinary Association was accepted to assist this committee.

At 12 o'clock it was moved, seconded and carried to adjourn to visit the plant of the St. Louis Dressed Beef and Provision Co., under the direction of Dr. W. S. Cass, where the guests were afforded the opportunity to observe the methods of government inspection of cattle, hogs, sheep and calves, and their methods of stamping and tagging such meat products. A few interesting cases which had been condemned were examined, and many other things of interest were seen.

At 1.30 P. M. the party was conducted to the Delmonico, at Manchester Road and King's Highway, where they were banqueted in royal style by the veterinarians of St. Louis, Dr. Chas. Ellis acting as toast-master.

At 3 o'clock a surgical clinic was held at Dr. R. A. Kammerer's hospital. Dr. R. C. Moore, of Kansas City, demonstrated a new method of administering chloroform by a specially arranged nose bag, and performed the operation of median neurectomy.

An operation by Dr. E. J. Netherton upon a carcinomatous growth affecting the eye of a horse.

Dr. Moore, assisted by Drs. Ellis and Andre, performed the operation of arytenoiderraphy upon a "roarer."

An operation of tenotomy for "stringhalt" and several other operations and clinical cases to be diagnosed were presented, which lasted until 6 o'clock.

At 7.30 P. M. the meeting was again called to order, when the following papers were presented: Dr. H. Bradley, "Acute Bowel Trouble"; Dr. Chas. Ellis, "Needed Veterinary Legislation in Missouri"; Dr. E. Brainard, "Influenza"; Dr. T. J. Menestrina, "Canine Distemper"; Dr. J. W. Connaway, "Parturient Paresis in the Cow."

Under "Reports of Cases" Dr. J. M. Phillips reported an interesting and unusual case in which the teeth in a dog thirteen years old became very loose, making extraction necessary; some months afterward three new teeth developed.

At 11.30 o'clock the meeting adjourned.

At 9 A. M., Oct. 4, the meeting was again called to order by the President, Dr. Bradley, when the following papers were offered: Dr. C. Miller, "Infectious Ulcer of Vulva of Cattle"; Dr. J. W. Parker, "A Bacillus from Infectious Vulvar Disease of Cattle"; Dr. L. M. Klutts, "Laminitis"; Dr. F. W. O'Brien, "My Experience with Schmidt's Treatment of Parturient Apoplexy."

Dr. S. Stewart gave a good and interesting account of the last meeting of the American Veterinary Medical Association.

The following officers were elected for the coming year:

President—Dr. F. W. O'Brien.

Vice President—Dr. J. W. Connaway.

Secretary and Treasurer—Dr. B. F. Kaupp.

A motion was made, seconded and carried, to hold the next meeting in Kansas City, October, 1901.

At 12 o'clock the meeting adjourned, and the party proceeded to the St. Louis Fair, where an enjoyable afternoon was spent. About dark the party disbanded, ending the most successful meeting in the history of the association.

B. F. KAUPP, D. V. S., *Secretary.*

THE NEW YORK STATE VETERINARY MEDICAL ASSOCIATION.

The October REVIEW gave an extended and enthusiastic report of the unprecedentedly successful meeting of the New York State Veterinary Society held at Ithaca, Sept. 12–13 last. That report made it clear that in point of interest to those present it has not been surpassed in the history of association work in America. It was preëminent in some ways, which have been emphasized largely since the meeting, or rather expression given to its force, which serve to show its substantial, enduring character.

The great increase of attendance involved the appearance of many new faces—many veterinarians who had not attended the society meetings before, but who will assuredly attend again. They largely united with the society and all entered intimately into the life of the meeting. The definite policy of the meeting, clearly announced in advance, that veterinarians who had not been members, or those who had been but had dropped out, were heartily urged to attend and participate, had an excellent effect and everybody felt throughout the influence of common professional fraternity.

While each veterinarian in attendance showed by his assiduous attention his deep interest in the meeting, and those having an opportunity at the close gave free expression to the profit it had been to them. One of the most gratifying evidences of enduring influence of the meeting is the numerous letters which have been received from members who hurried away toward the close of the meeting without opportunity for personal expression, but upon reaching home took occasion to express their gratitude by writing back. This shows that what they heard and saw left an impression which endured until they reached home.

Others who failed to attend have expressed their regrets, and some in distant States have already sent assurances of their intention to be present at the meeting at Ithaca next year.

REVIEW readers, and especially those who attended, may be interested in the final outcome of the patients operated upon at the clinic.

The gelding upon which Dr. Corrigan performed caudal myectomy for gripping of the reins, was driven home the same day, has done well and necessarily ceased to grip the reins.

The colts castrated by Drs. Cowie and Gay each recovered without incident.

One of the cows spayed by Dr. Jewell made the bad record of the clinic. The one which behaved so badly by constantly lying in the stocks showed no evil effects from the operation, fatted nicely and has been sent to the butcher. The other cow which offered no resistance, became infected and died from septic peritonitis after three days. Autopsy failed to reveal any error of a mechanical kind and the fatality was necessarily referred to some error in asepsis.

The vicious mare owned by Dr. Huff, spayed by Dr. Ide, and caudal myectomy performed by Dr. Fisher, exhibited no inappetence, fever or inconvenience, and was driven home, 90 miles, in about a week after the meeting. Dr. Huff writes: "The mare is all O. K., no more foolish actions, drives as nice as she can, does not squeal any more in the stable nor urinate when I speak to her in the barn or on the road . . . am well pleased."

The vicious mare spayed by Dr. Stone recovered like the other without evidence of inconvenience and travelled 60 miles home six days later, and like Dr. Huff's mare is gentle and kind.

The repulsion of diseased molar, with removal of the external alveolar wall with artificial drainage of the pus-containing sinuses through the nostril, has recovered satisfactorily. Those who saw the case will remember the bulging of the face, the fœtid odor, the repulsive nasal discharge and the poor condition of the animal. The fœtor ceased in a few days, as soon as the wounds in the bone could begin to granulate. The nasal discharge ceased immediately, the wounds healed promptly, the animal was returned to regular work and looks and feels better than for a long time prior to operation.

Next year when the association meets at Ithaca it will find a better arranged clinic, at least as extensive and instructive as the one just past, and without duplicating the cases of this year. We hope that veterinarians will suggest clinical operations they desire to see next year and that more members volunteer to assist in them. In any case the meeting will be superior to the one held this year, the degree of superiority to depend upon the advice and assistance of New York veterinarians.

W. L. W.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

President Butler has made the following appointments of Resident State Secretaries for 1900–1901:

Alabama—L. Van Es, Mobile; *Arizona*—J. C. Norton, Phœnix; *British Columbia*—Johnson Gibbins, 623 Granville St., Vancouver; *California*—Fred. E. Pierce, 724 Webster St., Oakland; *Colorado*—Charles Gresswell, Boston Bld., Denver; *Connecticut*—R. P. Lyman, 997 Main St., Hartford; *Cuba*—R. J. Stanclift, Puerto Principe; *Delaware*—H. P. Eves, 507 W. 9th St., Wilmington; *District of Columbia*—J. P. Turner, Washington; *Georgia*—N. P. Hinkley, Atlanta; *Hawaiian Islands*—W. T. Monsarrat, Honolulu; *Illinois*—E. M. Nighbert, Mt. Sterling; *Indiana*—J. R. Mitchell, Evansville; *Iowa*—W. A. Heck, Maquoketa; *Kansas*—W. H. Richards, Emporia; *Kentucky*—J. W. Jameson, Paris; *Louisiana*—W. H. Dalrymple, Baton Rouge; *Manitoba*—W. J. Hinman, Winnipeg; *Maryland*—L. A. Nolan, Baltimore; *Massachusetts*—Benj. D. Pierce, 27 Sanford St.. Springfield; *Michigan*—G. W. Dunphy, Quincy; *Minnesota*—J. N. Gould, Worthington; *Mississippi*—J. C. Robert, Agricultural College; *Missouri*—W. S. Cass, 2826 Dayton St., St. Louis; *Montana*—Stewart W. McClure, Helena; *Nebraska*—J. S. Anderson, Seward, Nebr.; *New Hampshire*—Lemuel Pope, Jr., 101 State St., Portsmouth; *New Jersey*—J. Payne Lowe, 19 Bloomfield Ave., Passaic; *New York*—Wm. Henry Kelly, 195 Western Ave., Albany; *North Carolina*—A. S. Wheeler, Biltmore; *North Dakota*—T. D. Hinebauch, Tower City; *Nova Scotia*—W. Jakeman, Halifax; *Ohio*—T. Bent Cotton, Mt. Vernon; *Ontario*—John W. Groves, Hamilton; *Oregon*—Wm. McLean, 328 Fourth St., Portland; *Pennsylvania*—E. M. Ranck, 422 N. 41st St., Philadelphia; *Quebec*—Chas. H. Higgins, 6 Union Ave., Montreal; *Rhode Island*—J. M. Armstrong, 96 Derrance St., Providence; *South Carolina*—George E. Nesom, Clemson College; *Tennessee*—Geo. R. White, Nashville; *Texas*—M. Francis, College Station; *Virginia*—E. P. Niles, Blacksburg; *Washington*—S. B. Nelson, Pullman; *West Virginia*—F. P. Ruhl, Fairmont; *Wisconsin*—G. Ed. Leech, Milwaukee.

President Butler has also appointed the following committee on Pharmacopœia: Dr. W. J. Martin, Kankakee, Ill., chairman; Drs. E. L. Quitman, Chicago, Ill., and W. G. Clark, Marinette, Wis.

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular meeting of this association was held in the city of Waterville, Oct. 10th, the President, Dr. A. Joly, in the chair. A large and representative gathering of members from all parts of the State made this one of the best meetings the association has ever held.

After roll-call, reading of minutes of previous meetings, etc., by the Secretary, Dr. Salley read a paper on "Torsion of the Neck of the Uterus," which was discussed by Drs. Joly, Blakely, Russal and Freeman.

Following this came reports of cases, which were freely discussed, at considerable length.

The next meeting will be held at Augusta, in January.

F. E. FREEMAN, V. S., *Secretary.*

THE OHIO STATE VETERINARY ASSOCIATION

will meet in annual session during the first half of January, 1901, at the Ohio State University, exact date not yet decided. All veterinarians of Ohio are especially invited to make arrangements to meet with us, and if not members are invited to join us.

Membership fee, $5. W. H. GRIBBLE, *Secretary*,
Washington C. H., Ohio.

NEWS AND ITEMS.

DR. TAIT BUTLER, President of the A. V. M. A., has removed from Indianapolis, Ind., to Cudahy, Wis.

THE ONTARIO VETERINARY COLLEGE opened the session of 1900–1901 on October 10th with an address by Principal Smith before a large class of students.

THE WISCONSIN SOCIETY OF VETERINARY GRADUATES is actively engaged in prosecuting offenders under their recently acquired practice act, and is meeting with some success.

A CIVIL SERVICE EXAMINATION for the positions of inspectors and assistant inspectors under the Bureau of Animal Industry, was held at New York, Oct. 23.

RECENTLY a weanling mule was sold for $76, and numberless sales of adult hybrids at $500 and $400 per team are being recorded.

CRESCEUS recently trotted a mile in 2.04 at Cleveland, Ohio, placing himself firmly on the throne of trotting stallions, and seriously menacing the world's trotting record of 2.03¼, so lately made by that great gelding The Abbott.

DR. H. FEE, Waterloo, Iowa, graduate of the Ontario Veterinary College, class '87, is dead. He was a member of the Iowa State Veterinary Medical Association and a successful practitioner.

DR. J. WILLIAM FINK, who has been filling the position of assistant to Dr. R. W. Hickman, B. A. I., New York, has been transferred to Washington, for duty under Dr. V. A. Noorgaard, Chief of the Division of Pathology.

DR. EDWARD R. SQUIBB, of Brooklyn, founder of the well-known manufacturing drug house of E. R. Squibb & Son, is dead at the advanced age of 81. He was a man of the highest integrity, and his products are everywhere synonymous with purity and excellence.

FIELD MARSHAL VON WALDERSEE, Commander-in-chief of the army of the allies in China, has had shipped for his personal use in the Orient, two fine American saddle horses, purchased from S. T. Harbison & Co., of Lexington, Ky. They cost in Kentucky about $1500, which will be greatly increased by the expenses of transit. Since the Germans have ever boasted of their own bred army chargers, we may take it as evident that the American saddle horse is deemed superior.

CAPT. R. MARSHAM, of the English Army, located at New Orleans, La , has written several times to the REVIEW, asking for veterinary surgeons to take charge of cargoes of mules and horses from New Orleans to South Africa. The terms offered were $250, first-class passage to New Orleans, expenses while there, passage to the Cape and back to place of residence in America.

A NEW theory is being exploited by a Texas stockman regarding the spreading of Texas fever infection among cattle. It is now said that the matter from the diseased heels of cattle suffering from the fever spreads the germs and if some lotion could be discovered or compounded to heal the feet or make them at least aseptic, all danger would be done away with.—*Breeder's Gazette.*

THE "CLIMAX" RUBBER HOOF PAD, made by the Consolidated Hoof Pad Co., of 18 Vesey Street, New York, stands to-day in the front rank, having reached this position among its competitors through its scientific construction and the use of a high grade rubber. In shoeing with this pad one comes very near to nature's scheme in the physiology of the functions of the foot. When shod with the "Climax" the bearing on the hoof is perfect, the pressure being on the frog and wall of the hoof (no sole pressure), and consequently insuring perfect circulation and a healthy condition. Owing to the high grade rubber used, the "Climax" wears most satisfactorily and affords a soft cushion for the frog, counteracting the evils produced by the necessary use of the iron shoe and of the artificial roads of the present day; in fact, it converts the paved street into a natural field. As the use of this pad will prevent as well as cure contraction, it is as necessary for a sound horse as a sore one. Remember, it is the "Climax."

INTERSTATE ASSOCIATION OF LIVE STOCK SANITARY BOARDS.—The annual meeting of this association was held Oct. 3 and 4 at Louisville, Ky. Resolutions were passed deploring the prevalence of tuberculosis among cattle and cholera among swine and providing for the making of an effort to secure federal legislation to stamp them both out. Dr. Salmon, who was present, representing the Department of Agriculture, stated that the Department would at the next session of Congress ask for the passage of a law prohibiting the shipment of diseased cattle from one State to the other, thus solidifying and strengthening the efforts of individual States in this line. J. H. Brown, Kalamazoo, Mich., President of the Michigan Live Stock Board, stated that he had tested cattle owned at all of the asylums in that State, finding much tuberculosis, and that in one dairy of fifty-two cows near Detroit twenty-eight had reacted to the test. At the Kalamazoo asylum he had tested thirteen cows and found twelve of them tuberculous, according to the test. J. W. Smith, Secretary of the New York Tuberculosis Committee, read a paper detailing what had been done toward exterminating the disease in the Empire State and the testing of 4000 cows in and around Syracuse, with the result that 550 reacted. Dr. A. W. Bitting, State Veterinarian of Indiana, had a paper on the prevalence of hog cholera in that commonwealth. He stated that 500,000 hogs died of that disease in Indiana in 1899. The second day the chief subject of discussion was Texas fever. A resolution was adopted providing for the appointment of a committee from each State through which the fever line runs to consider the advisability of establishing a permanent zone with a closed season. Another resolution recommended that the United States Department of Agriculture establish an open season in November and December and that the various States interested act in accordance therewith. A further resolution was passed favoring the enactment of such federal laws as will put a stop to the transmission of diseases of live stock through the channels of interstate trade. Col. C. P. Johnson, Illinois, was reëlected President; E. P. Noles, West Virginia, Vice-President; Dr. E. F. Eisenman, Louisville, Secretary.

PRACTICE FOR SALE—BARGAIN.

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AMERICAN VETERINARY REVIEW.

DECEMBER, 1900.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

THE "REVIEW" GREATLY STRENGTHENED.

Beginning with the current number, Robert W. Ellis, D. V. S., of New York City, becomes a one-third owner and assumes the sole business management of the AMERICAN VETERINARY REVIEW.

As a teacher at the New York-American Veterinary College; as Secretary of the Veterinary Medical Association of New York County for more than five years; as an enthusiastic, earnest and successful practitioner; and as a conscientious and high-minded gentleman, he is so well-known to the readers of the REVIEW that no further announcement than that contained in the opening paragraph of this article is necessary to assure them that a most valuable acquisition has been secured, and that henceforth there will be a great amount of business principles and energy infused into the management of this publication—a department which has been persistently sacrificed upon the altar of economy—and they may now confidently anticipate a more welcome and interesting monthly visitor than they have ever had.

Prof. Liautard will continue in the capacity of senior editor, and his admirable scientific editorials and translations will regularly appear as in the past, as the first and freshest thoughts of the brightest minds of Continental Europe. Dr. Bell retains all of his functions as the home editor—collecting, classifying, and compiling the contributions of its numerous collaborators and correspondents, and using his utmost endeavors to make the REVIEW of value and interest to the profession. His private practice has so curtailed the time that should have been bestowed upon the details of the business management of the REVIEW that the latter has suffered much in consequence; but with the advent of Dr. Ellis, his burdens will be greatly lightened and the quality of his journalistic efforts much increased.

All correspondence relating to business matters, subscriptions and payments should be addressed to Dr. Robert W. Ellis, 509 West 152d Street, Borough of Manhattan, New York City, and communications for publication or in relation thereto, are to be addressed to Dr. Roscoe R. Bell, Seventh Avenue and Union Street, Borough of Brooklyn, New York City, while those desiring to reach Prof. Liautard personally can do so by directing their letters to 14 Avenue de l'Opera, Paris, France. Correspondents and others will please make a note of the addresses, which will insure prompt service.

ATLANTIC CITY WINS CONVENTION OF 1901.

The Executive Committee of the American Veterinary Medical Association has decided to accept the very earnest invitation of Atlantic City, N. J., as the place for holding the annual meeting of next year, and the veterinary hosts will gather at this beautiful seaside resort next September to partake of the feast of reason which is yearly prepared through the concerted efforts of the members. While a programme of pleasure is not the incentive which brings them from far and near, it is not by any means an objectionable feature to strike tents amidst pleasant surroundings, where the short respite from the active and arduous demands of every-day practice may invigorate and refresh the system as well as enlighten the mind. With such natural advantages as is possessed by this popular resort, the committee of entertainment need add but little beyond that warm welcome which the sons of Jersey know so well how to extend. New Jersey's claims upon the association for the meeting in the first year of the new century were very strong. For nearly forty years her sons have been a powerful column in the work of the national organization, and in the years when the association was distinctively an Eastern body, its membership being confined to a narrow strip of country along the Atlantic seaboard—meeting one year in New York, the next in Boston, and again in Philadelphia—New Jersey was always passed by, and, strange as it may seem, there was never a meeting held within its borders. For years, also, it has struggled with the associational problem, being split into factional societies, pulling in opposite directions, and none of them being truly representative of the profession of the State as a whole. With a spirit of harmonious unity worthy of emulation in every State, and under the intelligent leadership of our own Lowe, these warring factions were last year cemented into one great, strong, and glorious State association, powerful to guard the interests of the profession of the commonwealth and to wield a mighty influence in that of the nation. The REVIEW feels that the decision just reached is a fitting recognition of the claims of New Jersey upon the National Association, and believes that the latter will find profit and pleasure within her hospitable borders.

HARVARD TO CLOSE ITS VETERINARY SCHOOL.

We regret to find the following dispatch in the New York *Times* of Nov. 21:

> CAMBRIDGE, MASS., Nov. 20.—Because of the successive annual deficits in the accounts of the Veterinary Department of the University the corporation of Harvard has decided to receive no more students for that department, but the students already in the school will be given sufficient instructions to obtain their degrees.

One of the first, if not the very first, of the great universities to hold forth a helping hand to a science which at the time was sorely in need of recognition and assistance by such high authority, the profession may well feel keen regret at the decision which has been reached by the Corporation of the University. It was never a self-supporting department, we believe, but has persisted in its instructions largely through patriotic motives, and in the hope that its efforts would finally receive sufficient appreciation to be financially successful.

After the above was in type we wrote to Director Lyman, asking fuller particulars of the announcement, as it had been widely published, and the following reply was received, which we are more than pleased to print in full, since a strong hope is held out that the school may yet go forward even upon a stronger basis than ever :

HARVARD UNIVERSITY, SCHOOL OF VETERINARY MEDICINE,
50 VILLAGE ST., BOSTON, NOV. 30, 1900.

Dear Doctor Bell:

* * * * * * *

It is true that on the 12th of this month the Corporation of Harvard College voted that notice should be given that no new students in veterinary medicine will be received by the University until further order of the President and Fellows ; but that the instruction to students now in the school should be completed, so far as any of them may desire, until the entire course has been given—that is, until June 30th, 1903. You will see that this vote does not necessarily contemplate the closing of the school even in 1903, and therefore differs materially from the statement which you have copied from the New York *Times*.

The facts are, shortly stated, as follows : This school has never received any endowment whatever ; as a result of this it has, of course, been impossible to give the quality of instruction, which is deemed desirable, within its income ; the annual deficits have therefore, until now and for the last 18 years, been paid by the University, and we feel that unless endowment can be raised, from which the school may be placed upon something nearer a self-sustaining basis, it will be better for us to give up the further teaching of Veterinary Medicine ; but I am far from being without hope that this desired endowment will not be raised before our organization will have been given up in 1903.

When first organized the school had a definite plan of procedure mapped out, which has been followed, up to this time, by good results : its further development will necessitate, by probably lessening the number of students for a time, a still larger annual deficit. Under these circumstances, the school feels it prefers to stop, if it must, where it is, rather than to go forward upon an insecure foundation.

Yours very truly,
CHARLES P. LYMAN, *Dean*.

IF the approaching session of Congress does not pass the Veterinary Section of the Army Reorganization Bill, it will not be the fault of the Army Committee of the American Veterinary Medical Association, for it has inaugurated a campaign of education among the members of the lower house, where the bill is pending, of the most thorough and effective nature, and the arguments used are so manly and convincing, that it would seem that no fair-minded man could withhold his support from the measure. The amount of work involved upon the part of the Committee has been enormous, taking in the whole country, and acting through the personal appeals of each Representative's veterinary constituents. We hope and believe that the small task asked by the Committee of the various veterinarians whom they have addressed—the labor of which has been done by the Committee in advance—has already been complied with, and that sufficient pledges have been secured to guarantee the passage of the bill.

THE NEW YORK STATE VETERINARY COLLEGE sustained serious loss by fire on the morning of the 13th ult., but, phœnix like, it arose immediately from its ashes, and resumed its functions with little inconvenience to the students. Director Law has furnished us with the details of the conflagration, which will be found elsewhere.

THE first section of a valuable contribution to veterinary literature appears elsewhere under the title of "Prophylaxy of Infectious Diseases of Domestic Animals" from the pen of the versatile Nocard, translated by Prof. Liautard. It will be completed in the January number.

DR. E. L. VOLGENAU, B. A. I., has been transferred from New Haven to Buffalo, and is commissioned to make tuberculin tests of Canadian cattle intended for this side of the line on the farms where they are owned. He should be addressed at Live Stock Exchange Building, Buffalo. He will visit any point in Canada when his expenses are paid by the owner of the cattle to be tested. This affords opportunity to have cattle tested at home under natural conditions and is a great improvement over the former system.

ORIGINAL ARTICLES.

PROPHYLAXY OF INFECTIOUS DISEASES OF DOMESTIC ANIMALS.

By Prof. Ed. Nocard,* France.

Gentlemen :

*   *   *   *   *   *   *

In the narrow sense of the word, prophylaxy means the prevention of diseases. To apply prophylaxy is to put in practice the proverb, " prevention is better than cure." This is better in every way, because there are diseases which are incurable, or rarely cured, because even in cases of recovery the owner always stands a loss, varying with the duration of the disease, the depreciation it involves and the expenses of treatment, and finally with the often considerable number of animals affected. It is such that such disease, not serious by itself, because it very seldom kills, and is cured in a few days or a few weeks ; fever, for instance, is in reality, to the economical point of view, more serious than rinderpest, with which 90 per cent. at least of the affected animals die ; it is because aphthous fever spreads with frightful rapidity ; few animals escape contagion, and the loss, proportional to the number of affected individuals, reaches enormous figures.

All infectious diseases do not develop in the same way. Hence the methods to control them are numerous and varied.

The first condition to carry out good prophylaxy is to know how the disease develops : " *Sublatus causa tollitur effectus.*" To suppress the cause it must be known, and when it is it becomes more or less easy, more or less completely suppressed.

Let us take, for example, malaria of man, also known as intermittent fever, paludism. This is a disease known from time immemorial. Until recent years its nature was unknown. It is known now that it develops in the neighborhood of ponds, or of stagnant water in marshy regions. And, without knowing exactly the intimate cause of the disease, prophylaxy was carried out by drying off the marshes ; but it was always a costly and often impracticable operation. But numerous dangerous regions have been thus made healthy.

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* Extract from *L'Ingenieur Agricole de Gembloux.* Translated by A. Liautard.

Then, empirically, by a fortunate hazard it was learned that when the disease existed it could be cured by quinine. This was administered first in the shape of pulverized cinchona bark, then in that of salts, saltpetre or muriate of quinine.

For a long time it was not known how quinine acted. Since then the parasitic nature of malaria has been recognized, and to-day it is well known that quinine acts in destroying the parasite, not under all its forms, or in every stage of its evolution ; it reaches it when it proliferates, when it gives birth to new legions of parasites. These beings, all in a condition to come to life, are destroyed by quinine.

In times gone by it was believed that marshes were dangerous from the emanations or effluvia arising from them which were transported by the air. To-day we know that it is not the air which carries the germs of the disease. Marshes are dangerous because they are excellent media of culture for mosquitoes, and that it is by them that paludism is spread. This point well established, a new means of prophylaxy was indicated : it is to sterilize the marshes, to render them unfit for the culture of mosquitoes, when drainage cannot be applied. This method succeeds very well, when the stagnant waters do not cover too much space, by pouring on their surface a mixture of petrole and tar, which spreading in a thin layer over the water destroys the larvæ of the mosquitoes by preventing them from breeding. The dangers from these insects are thus suppressed.

Finally, when marshes cannot be drained or covered with petrole, one can yet protect himself from malaria in the regions most infested by using mosquito nets, especially during the night, the insect being nocturnal. With a good net one can cross the most infested countries without fear. This is an example which shows how simple prophylaxy is sometimes.

Here are instances taken from the pathology of animals.

Texas fever, or bovine malaria, is a disease widely spread over the globe; central Europe is perhaps the only region free from it.

It is also a disease caused by a parasite of the corpuscles of the blood. This disease, very different from the other, is inoculated to animals not by mosquitoes, but by another insect of the great family of ixodes, vulgarly called *ticks*. It is the tick which with its sting deposits in the blood a small number of parasites which multiply with such prodigious rapidity that in some cases, a few days after this inoculation, the number of red corpuscles, which in a healthy animal is over eight millions to a cubic millimeter, drops to less than one million. All the invaded corpuscles are dissolved, the urine becomes bloody or dark and animals die in a few days. Cattle can be protected by various means. One which seems the simplest would be to stop the importation of animals from the countries where the disease exists; if they are already imported they must be cleaned of the ticks that are on them. Once free from those parasites those animals are no longer dangerous, unless ticks come again on them. Other means can be used to prevent bovine malaria. For instance, infested regions can be made healthy by changing the cultivation of the soil from natural to artificial fields, where it seems ticks cannot develop. Finally, my assistant, Mr. Lignières, has shown that it is possible also to protect cattle by a process of true vaccination.

Another disease unknown in our countries, but which has a certain interest of actuality, is the "Horse Sickness" of South Africa, which did so much harm to the English army at the beginning of the war. Its nature is not known, but it attacks, almost fatally, all the horses which are recently imported into that country. Those which are not acclimated, that are not "salted," as the Boers say, are in general lost; however, if they resist a first attack, they are protected forever and they become very valuable. This disease is not contagious. During the winter the disease can be inoculated to an imported horse and he will die without communicating the disease to his neighbors in the stable. It is probable that this disease is also inoculated by nocturnal insects. Indeed almost all horses imported into South Africa take the disease; most of them die unless they are brought in at night, before sunset, and are not left out until morning after sunrise. That prophylaxy is not complicated but difficult to carry out while in campaign. These examples show how varied are the means proper to prevent the propagation of diseases.

* * *

Although very varied, these processes, these methods can be collected into three large groups. In the first we will place the measures, properly called, of sanitary police; in the second, we will find artificial immunization given by the inoculation of viruses, attenuated or not; finally, in the last, the various modes of serotherapy, preventive or curative, associated with or without the inoculation of the virus or of the vaccine. We shall examine these three groups successively, and I will as we go on show you their application to the medicine of animals.

(1) SANITARY MEASURES.

The fundamental basis of sanitary police is to *isolate* the animals affected with contagious diseases. These affections do not spread except by the direct or indirect contact of diseased with healthy animals. If the sick were strictly separated from the healthy no contagion would occur and the disease would disappear of itself, either because the animals would die or recover. It is understood that the cadavers should be destroyed, and the places which the sick had occupied should be disinfected. Our fathers knew this, and Greek and Latin authors who have written on agricultural subjects and described anthrax (*ignis eacer*) and glanders (*malleus*) recommended not only the isolation of the sick, but also that the cadavers should be buried or burnt.

Those measures are still the base of sanitary legislation in all civilized countries. It is completed by disinfection, in some cases by slaughter of the sick and burning of their cadavers.

Slaughter is justified by this fact, that most of the contagious diseases are principally spread by contact with the sick. When it is dead the danger is much less. There are instances where the cadaver is, on the contrary, more dangerous than the living animal; because it is after death that it contains more germs of the disease. The proverb "dead the beast, dead the virus," is not always true. The cadaver then must be destroyed as quickly and as completely as possible. When it is not easy to obtain a rapid way of destruction, one must be satisfied with burying; but it is indicated to throw the cadaver into special places, true cemeteries for animals, which shall be surrounded by walls or close fences and whose entrance shall be strictly forbidden to other animals. Experience has shown that germs are not always destroyed by burying, and that even after a deep burying it often happens that those germs are brought back on the surface of the earth by earthworms which come and deposit them with their fæces.

Each town ought to have such a cemetery if other more powerful means of destruction are not possible. Evidently it would be better to dissolve the cadaver in sulphur and use the remains for fertilizing purposes. This will be one of the progresses of the future!

Isolation or slaughter of the sick constitute theoretically the necessary and sufficient measure to prevent the spread of a disease. Yes, it is sufficient, providing the effusion is recognized early enough, and that the animal has not communicated it to its neighbors. But it is very rare that the diagnosis is made at the start, before contamination has occurred, and the result is that the sanitary measures cannot relate only to those affected, but also to those which may have already taken the germ of the affection. It is absolutely necessary to keep them isolated, sometimes quarantined; at any rate, prevent their sale; it is by them, indeed, that most often new centres of infection are formed in the stables, in the barns where the hazards of the sale bring them. They are so much more dangerous that free from any visible symptoms they are placed without fear among healthy animals. That must be prevented. Moreover, there are diseases which are so dangerous that the contaminated must be killed like the sick, so as to suppress as quickly as possible everything that might serve as a vehicle to contagion.

These sanitary measures have for a long time been the base of all prophylaxy. To-day we still have no other means of guarding against certain diseases, rinderpest—for instance, that terror of Occidental Europe. It may be said that the sanitary egislation of all European States prescribes slaughter not only of all the sick but also of all which have had contact with them and may have been contaminated directly or indirectly through them. It is an expensive medical measure, but one which is fully justified. It is because of the great losses resulting from an epidemic against which mild processes are used, and because, after all, the invasion of rinderpest in the countries of Occidental Europe are rare, and finally because when it is applied early and strictly it is entirely efficacious. You know that rinderpest is an almost fatal complication of European wars; armies were followed by immense provision convoys; animals belonging to them are submitted to long journeys; their financial value must be as low as possible; the grey breed of the steppes fulfill admirably those conditions; it is with it that armies in campaign are supplied, but, as in days gone by, rinderpest existed in permanence on the steppes of Hungary and Russia. To the scourge of war was added that of the disease of cattle.

It is not so any longer; rinderpest has disappeared from Hungary and from European Russia; it exists only in the far provinces of Asiatic Russia.

Against these possible infections all measures—severe as they may be—are justified; they are costly, but it is the only expense, and if done at once is an economy, as one is sure that there will be no more disaster.

Remember that in 1866 England lost far more than 100 millions of dollars, for the reason alone that she did not recognize the nature of the disease at the start, and that when it was known she hesitated in the choice of the measures to take; since

England has benefitted by the experiment and has understood the importance of a good sanitary police, we have seen her resort to such severe measures against foot-and-mouth disease.

Aphthous fever, that disease, so mild that it makes animals scarcely sick, prevents them from eating for a few days, perhaps a few weeks, and gets worse so easily. English people, who can count, know that it caused to their agriculture losses far inferior to those of rinderpest, decided to get rid of it, cost what it might. Indeed, foot-and-mouth disease spreads with extreme rapidity by all the modes of contagion, by the animals, by the objects they have soiled, the people, the buyers who go in the barns to examine them, etc.; it recidivates frequently at short epochs. I know barns where it has occurred twice in one year, but this is rare. The possible return of the disease increases, and if one considers that in every great epidemic many animals succumb or must be destroyed, an idea can be obtained of the enormous losses agriculture has to stand. England, knowing all this, with her characteristic resolution, has immediately done all which was necessary to get rid of it. First she closed her ports, and that in a radical way, easily carried out by her insular situation—she does not allow the landing of live animals coming from infected countries. She is protected from a new invasion from outside. From the interior she has adopted regulations and exceedingly strict and minute measures, to which the people submitted without protest.

Those severe measures have succeeded in entirely extinguishing the disease in Great Britain ; they would not be so efficacious with us, where land frontiers are more difficult to guard against the importation of diseases of cattle.

Stamping out (the general slaughter of all diseased or contaminated animals) has been applied with no less success for *contagious pleuro-pneumonia*, but with this disease it was not England that applied it first. For a long time the duchy of Baden, Holland, and Switzerland have succeeded in suppressing contagious pleuro-pneumonia. England only imitated them, and she did it with energy, and in three years succeeded in ridding herself of the heavy tribute she had paid for fifty years to that terrible disease. It has cost much : 14,000 or 15,000 animals had to be killed, but the result was success. We know with what success Belgium has applied the same measures.

During the last few years other countries, Austria and Hungary, have followed the example, and with relatively small expense they have succeeded in suppressing the disease. Thanks to the "stamping out," the slaughter of all the sick or contaminated, completed by strict disinfection, the same result was reached. There is this advantage in these expenses : when once done they do not again occur.

We shall see later on that contagious pleuro-pneumonia can be treated with less expense by different and more scientific methods.

The general slaughter of the sick and of the contaminated is still the bases of the prophylaxy of rabies. In all civilized countries rabies is fought in this way. Rabies develops only from bites ; if, then, all the bitten animals were killed immediately after being bitten rabies would soon be extinguished. But in practice this radical measure is difficult to apply ; it can never be known what dogs have been bitten by the mad dog. Experience has shown that it is always by dogs running on public roads that rabies is propagated, and the proof of this is that wherever these dogs are not allowed to exist rabies decreases rapidly and drops to insignificant numbers. Slaughter, then, ought to be carried out, not only on those that are bitten, but also on those that are on the public roads. I repeat, wherever this is done, rabies disappears.

We shall see directly that for herbivora which have been bitten the development of inoculated rabies can be prevented.

Stamping out is again the only means that can be applied against *infectious pneumo-enteritis* of swine ; this disease develops only by contagion, and so far no means of artificial immunization is known.

General slaughter would be entirely efficacious against *car-*

buncular diseases and *rouget of swine.* These are affections whose germs exist in the ground, and the great sacrifice of a general slaughter would have to be renewed.

Anyhow, we possess other efficacious means to relieve us of the heavy tax these diseases once cost agriculture in a great many countries.

(*To be continued.*)

ANTISEPTIC THERAPEUTICS.

By J. F. Winchester, D. V. S., Lawrence, Mass.

Read before the American Veterinary Medical Association, Sept. 6, 1900.

In presenting this subject it is not necessary to introduce new matter, as new material is very likely to be misleading. Theories have frequently been advanced that have been accepted for a while, but which in a short time have suddenly disappeared. When old material is worked up with the view of showing that it was originally started on sound foundations, then a paper of this kind becomes useful. It becomes useful in another way, for if one can only say something calculated to create discussion and to encourage a free interchange of opinion, thus further good comes from it.

At the outset it is well to bear in mind what is meant by therapeutics and what an antiseptic is.

Therapeutics is that part of medicine which relates to the composition, the application and the modes of operation of the remedies for diseases. It not only includes the administration of medicines, properly so called, but also hygiene and dietetics or the application of diet and atmospheric and other non-medicinal influences to the preservation or recovery of health.

Dr. G. M. Sternberg tells us that by an antiseptic we mean an agent which prevents septic decomposition by preventing the development of the micro-organisms which cause it, and the term is extended to the restraining influence exercised upon other micro-organisms of the same class including the pathogenic bacteria or germs of infectious diseases. Miguel has formulated a table of the value of various antiseptics, the proportion being that in which the agents named permanently prevented the development of any of the micro-organisms floating in the atmosphere, *i.e.*, the organic solution was freely exposed to the air and the test consisted in its permanent preservation from putrefactive changes. If Miguel had protected his solutions from atmospheric organisms and had inoculated them with pure culture of pathogenic bacteria, the results would have been still more favorable, and after a time, which would be different for different bacteria, he would have found that the pathogenic bacteria introduced into his culture media would have lost their ability to grow in a favorable medium.

So, too, in therapeutics, if we can restrain the development of a pathogenic micro-organism, we practically render it harmless, or at least restrict its power for mischief within limits which are compatible with the safety of the patient.

INDICATION.

The term indication is used by the therapeutist as equivalent to "the pointing of nature for relief." The success of the physician depends on his skill in reading the indications. In many instances the indication is not for a single remedy but for several, which by acting together will produce a combined result.

CAUSES.

In studying the cause of an existing disorder for therapeutic purposes, it is first necessary to decide whether such cause has already ceased to act or whether it is still existent and persistent in its influence. When the cause has been a fleeting one, no indications exist in regard to it; when the cause persists, however, the indication is for the removal of the cause: in such a case are we most successful as therapeutists. When we disinfect a wound or destroy a malarial organism by quinine, we carry out the indication for the removal of the cause. The distribution of bacteria is universal. Wherever man, animals or even plants live, die and decompose, bacteria must be present. Notwithstanding their extreme familiarity with the animal body, there are certain parts of it into which bacteria do not enter, or entering, remain vital for a very short time only, for the body juices and tissues of normal animals are free from them, and their occurrence in these places may almost always be accepted as a sign of disease.

Should the pabulum supplied to bacteria contain an excess of either alkali or acid, the growth of the organisms is inhibited. Most true bacteria grow best in a neutral or feebly alkaline medium. Light will usually attenuate the virulence of pathogenic bacteria. The presence of certain substances, especially some of the mineral salts, in an otherwise perfectly suitable medium, will prevent the development of bacteria, and when added to grown cultures of bacteria, will destroy them.

Bacteria which produce diseases are known as pathogenic; those which do not, as non-pathogenic. Between the two groups there is no sharp line of separation, for true pathogens may be cultivated under such adverse conditions that their virulence will be entirely lost; while at times bacteria ordinarily harmless may be made toxic by certain manipulations or by introducing them into animals in certain combinations.

A microbe having effected its entrance into an animal may grow with such rapidity as to completely block the blood or lymph channels, thus stopping the proper circulation, and disease and death must result. More common than this is a local establishment of the organisms with a resulting inflammation due partly to the pressure of the foreign organisms and partly to their toxic metabolic products. The term pneumonia is a vague one, really comprehending a variety of inflammatory conditions of the lungs quite dissimilar in character. This being true, no one should be surprised to find that a single organism cannot be described as specific for all.

The bacterium which can be demonstrated in at least 75 per cent. of the cases of lobar pneumonia and which is now almost universally accepted as the cause of the disease, and about whose specificity very few doubts can be raised, is the pneumococcus of Frankel and Weichselbaum.

In catarrhal pneumonia the majority of the cases are caused by the presence of the staphylococcus and streptococcus of suppuration. It frequently happens that pneumonia occurs in the course of, or shortly after the convalescence from influenza. In these cases both the influenza bacillus and the pneumococcus are present. Again the pneumococcus and the staphylococci operate simultaneously and produce a purulent pneumonia with abscesses as the conspicuous feature. It was not until 1892, after the great epidemic of influenza, that there was found simultaneously by Canon and Pfeiffer, a bacterium which conformed at least in large part to the requirements of specificity. It cannot be positively proven that this bacillus is the cause of influenza, but from the fact that the bacillus can be found only in cases of influenza, that its presence corresponds with the course of the disease in that it is present as long as the purulent secretions last, and then disappears, and that Pfeiffer was able to demonstrate its presence in all cases of uncomplicated influenza, it follows that his conclusion that the bacillus is specific is certainly justifiable.

The experiments of Delvine and Kole showed that the toxicity of the cultures resides not in a soluble toxin but in the bodies of the bacilli. The outcome of the researches was the total failure to produce immunity, and the subject is as susceptible as before, if not more so.

Recent researches in actinomycosis have changed the view held by some bacteriologists in regard to the actinomyces, and have caused them to regard the organism as a bacillus. If it be a bacillus, the central zone of granular cocci-like elements is to be regarded as consisting of individuals in process of rapid division and spore formation; the mycelial zone as consisting of perfect individuals, and the peripheral zone as consisting of individuals partly degenerated through the activity of the cells and tissue juices. The blood is known to have germicidal properties and these properties have been studied by Von Fordor, who reaches some interesting conclusions. He finds that increased alkalescence of the blood raises its germicidal power very much. The drugs which do this most effectively are the carbonates of sodium and of potassium. By the alkalinization of the blood of rabbits he made a large per cent. of them refractory to anthrax.

The alkali very frequently used by a great many is potash or some of its salts. The iodide of potass. closely resembles iodine, but is less powerful and devoid of local irritant action. It is an antiseptic. It promotes absorption of morbid products. Professors Thernassen and Nocard trust implicitly to the iodide in actinomycosis. In chronic poisoning with lead or mercury it removes the metals from the tissues and from the body.

Potassium permanganate, although it has not the antiseptic power of corrosive sublimate, effectually destroys bacteria. Goldberg, in summarizing the results obtained by all authors on the irrigation treatment of gonorrhœa, shows 60 per cent. cured within ten days, 30 per cent. within two weeks, while 5 per cent. required a longer period, and 5 per cent. were recorded as failures. The success was brought about by the use of a solution of permanganate of potassium (ordinarily one part to three thousand parts of water), all forms of internal medication and nauseous dosing being done away with.

The volatile or essential oils are mostly of vegetable origin, being found generally in the flowers, leaves, fruit or seeds of plants, but they occur in all parts of the coniferæ. Most are found ready formed, but some, as the hydrocyanated almond and mustard oils, are produced by a species of fermentation. The chemical constitution of the volatile oils differs from that of the fixed oils; most are pure hydrocarbons, with the molecular formula of oil of turpentine ($C_{10}H_{16}$) and are termed *terpines.* The volatile oils are *antiseptics* and *stimulants.* Oil of turpentine in medicinal doses is an antiseptic and stimulant, especially of mucous and skin surfaces. Like other volatile oils it is an active antiseptic. In destroying bacteria spores Koch found it more effective than alcohol, ether, chloroform or benzol, as no spores germinated after being wet with it for five days. It is eliminated by the lungs; it acts as a stimulant, an antiseptic and an expectorant, by the skin promoting diaphoresis; by the kidneys inducing diuresis. The camphors, physiologically as well as chemically, are volatile oils. In the form of a fine powder or a solution they are quickly absorbed; they stimulate the brain, spinal cord, heart and respiratory functions and are execreted by the skin and bronchial membrane, and also in smaller amount by the kidneys. They have considerable antiseptic power, Koch having found that one part to 2500 parts of water hindered the development of anthrax bacilli.

The benzol benzene, or aromatic series of carbon compounds, includes a number of antiseptics and antipyretics, viz.: benzene, carbolic acid, creolin, salicylic acid, salol, antipyrin, antifebrin, phenacetin, etc. Creolin has been proved by bacteriological tests to be more prompt and effective than carbolic acid in the destruction of the microbes of anthrax, fowl cholera, glanders, etc. Kaufmann states that as a bactericide it is *ten* times as powerful as carbolic acid, and that a ten per cent. solution does not irritate the skin, even when abraded, nor the mucous membrane. It is inhaled in ozæna, laryngitis, pharyngitis, strangles, bronchitis, gangrenous pneumonia and in purpura. In the form of an injection it is useful in the retention of placenta, metritis and purulent cystitis.

The petroleums or paraffins are hydrocarbons produced by the decomposition of vegetable matter. They are obtained from the destructive distillation of coal, from the bituminous shales and from the oil wells found in various parts of the world. The petroleum distilling over between 300° and 400° F. is chiefly nonane ($C_9 H_{20}$) and dodecane ($C_2 H_{26}$) and is used for lubricant purposes.

At higher temperatures there come off hexadecane ($C_{16} H_{34}$) and other paraffins richer in carbon, constituting such soft solids as vaseline and the soft petroleums; while still higher temperatures produce the hard paraffins. The petroleums belong physiologically to the fatty or alcohol series of hydrocarbons. The petroleum spirit and other paraffin oils, by virtue of their diffusive, solvent, stimulant and antiseptic actions, are valuable both for external and internal use, the petroleum benzin or petroleum spirit, being used for many of the purposes of oil of turpentine.

Dr. M. M. Griffith asserts that the crude semi-solid petroleum, as it accumulates on the casings about oil wells, is an invaluable remedy in chronic bronchitis and incipient phthisis. Huile de Gabian is a similar product which has long been famous in France as a remedy in lung diseases. Liquid petroleum is much used as a soothing local application in inflammation of the mucous membrane of the nose, throat, larynx, and even bronchial tubes. Iodine is an active antiseptic whether used in the gaseous, liquid or solid state. One part in 4125 parts of water arrests the action of diastase and ptyalin; one part in 7817 arrests the action of pepsin; one part in 7000 destroys both bacilli and their spores (Wernitz and Koch). Structures, whether natural or morbid, may be gradually liquefied and absorbed by its use. Medicinal doses are absorbed; they also stimulate glandular activity and promote metabolism. In the tissues iodine may again be set free and combine with serum albumen, but iodine albuminates are unstable and hence readily removed.

This appears to explain the action of iodine and its compounds in the liquefaction and absorption of pathological products. It is excreted by the mucous surfaces and glands, being found notably in the saliva, perspiration and urine.

Dr. H. L. Jenckes, in his notes on the "Therapeutics of Croupus Pneumonia," refers to a remedy which has been advocated as having a destructive, or at least an inhibitory action on the pneumococcus. This is ethyliodid. He quotes Professor Bortholow, who says: "The influence exerted by it on the cough, the labored breathing and the general malaise is a remarkable fact. It has the single advantage that no apparatus is required; it vaporizes at ordinary temperatures; it causes no irritation of the mucous membrane, and it does not act as an anæsthetic. The cases in which it was used were all apparently much benefitted by its inhalation, and all expressed a sense of relief to the general malaise and to the specific symptoms, cough, bronchial irritation and expectoration, the last mentioned being soon changed in character and in quantity."

Ethyl iodid should be freely inhaled, not only for its supposed specific effect upon the pneumococcus, but also for the relief it affords the pulmonary symptoms. Compressed air and creosote is recommended by Professor See in apical and fœtid bronchitis, the inhalations to be made daily or more frequently. The results obtained would appear to be surprising, a marked amelioration being observable in most cases. Professor W. L. Williams says that intra-tracheal medication has much to recommend it when rapid effects are desired, especially in those pulmonary diseases where antiseptics are indicated. At the time of writing his article on the subject, he had not met with noteworthy success in treating suppurative bronchitis by intra-tracheal injections of antiseptics, and he was unable to find any record of attempts to administer per trachea for therapeutic purposes, large volumes of liquids either as mechanical detergents or as topical or general antiseptics.

By referring to his article in the VETERINARY REVIEW, Vol. XXI, No. 9, you will find a very interesting account of two cases of traumatic bronchitis treated antiseptically through the trachea.

Dr. Jules Daurial gives his observation of lavage of the whole intestinal tract in eleven infants who were suffering from obstinate fœtid diarrhœa, which checked the disease in all instances. The fluid used was weak solutions of lactic acid and creolin. One case of typhoid fever was treated in the same way with good results. Dr. W. W. Johnson, of Washington, advocates the local antiseptic treatment of acute dysentery from the fact that the affection itself was local, being confined to the colon and the rectum.

The *rationale* of the method was shown in the fact that we had a local inflammatory process with rapid infiltration of tissue; a tendency to ulceration and necrosis and extensive destruction; while the decomposition and retention of decomposing solids and fluids in the bowels would result in autoinfection, with also the probable dependence of these conditions upon the introduction of a parasite.

(*To be continued.*)

RABIES AND HYDROPHOBIA.

By D. E. Salmon, D. V. M., Washington, D. C.

A Paper read before the American Veterinary Medical Association, at Detroit, Mich., Sept. 6, 1900.

(*Continued from page 584.*)

THE FREQUENCY OF RABIES.

Passing to the second contention, viz., that rabies is extremely rare, even in animals and that not one case in a million supposed to be rabies is properly diagnosed, let us briefly inquire into the facts. There are certain European countries which keep very accurate statistics of rabies in animals and the official reports of which may be taken as fairly reliable. In Germany these reports show 1202 cases of rabies in animals in 1898, in France 2374 cases in 1899, in Belgium 444 cases. In Great Britain in 1895 there were 727 cases; in Hungary in 1895, 1397 cases.

In the United States unfortunately we do not have general statistics concerning this disease. The writer has recently requested information from the State Veterinarians and from veterinary schools. A number of very carefully prepared replies have been received, which are summarized as follows:

Dr. Charles P. Lyman, School of Veterinary Medicine, Harvard University, Boston, 25 or 30 cases in 18 years. Mentions the case of a policeman in the town of Lynn who was bitten and died.

Dr. W. J. Coates, American Veterinary College, New York, seven cases a year for 25 years.

Dr. H. D. Gill, New York College of Veterinary Surgeons, New York, eight cases a year for three years.

Dr. Wilfred J. Lellman, New York College of Veterinary Surgeons, New York, four cases in his own practice and two in Dr. Gill's in one session.

Dr. Robert J. Wilson, Assistant Bacteriologist, Department of Health, New York, has confirmed the diagnosis during the last three years of 40 cases in domestic animals and three cases in human subjects.

Dr. Leonard Pearson, Veterinary Department, University of Pennsylvania, estimates 300 to 400 cases in 14 years. As State Veterinarian has found a great deal of rabies among farm animals. In many cases diagnosis has been sustained by laboratory tests. In man during last year, two cases in Lancaster, one in Kennett Square, one in Philadelphia, one in Allegheny. Three years ago a prominent veterinarian of Pennsylvania died of rabies.

Dr. J. M. Wright, McKillip Veterinary College, Chicago, from January 1, 1900, to April 5, 1900, had seen 11 cases in the dog and three in the horse. Handles about 20 cases of rabies a year.

Dr. A. H. Baker, Chicago Veterinary College, Chicago, has had in last year about ten cases in horses and 50 in dogs.

Dr. James Law, New York State Veterinary College, Ithaca, N. Y., has had brains of rabid animals repeatedly sent there for diagnosis, from which successful inoculations have been made. He brought a piece of the medulla of Neil, the keeper of the dog pound at Newark, N. J., who died as the result of being bitten by a rabid dog, and inoculated a dog and a number of rabbits, some on the brain, others subcutaneously. All developed rabies. Has the best of evidence of a number of men who died of rabies and from whom inoculation with saliva or brain substance caused rabies in the lower animals.

Dr. S. Stewart, Kansas City Veterinary College, says that 11 or 12 cases have been brought to the hospital within three years, five within one year.

Dr. John J. Repp, Veterinary Department, Iowa State College, says Dr. J. R. Sanders, of Corydon, Iowa, has noted 18 deaths of cattle with rabiform symptoms, seven out of one herd of 50. Medulla of one of the seven was sent to Dr. Repp, who inoculated a rabbit which died in 18 days after suffering four days with gradually increasing paralysis.

Dr. H. J. Detmers, Columbus, Ohio, formerly of the Ohio State University, has seen three cases in dogs and one in a horse since 1893.

The Health Department of Buffalo reports a recent outbreak, not yet entirely over, in which it investigated on complaint 45 cases in dogs, and that in addition 74 cases of dumb rabies and 41 of furious rabies were brought to the pound. Animals other than dogs to the number of 27 were affected, and four persons died of the disease. Rabbits and dogs were inoculated experimentally and died of the disease.

Dr. A. W. Bitting, Veterinarian of the Indiana Agricultural Experiment Station, reports one outbreak some years ago. Two or three dogs and several sheep and hogs belonging to the station were affected. One year ago one dog, seven horses and eight cattle died; this year, one dog.

Dr. C. A. Cary, Agricultural and Mechanical College, Alabama, states 24 cases have been observed there.

Dr. J. W. Scheibler, State Veterinarian, Tennessee, has seen about 20 cases.

Dr. George H. Bailey, State Veterinarian, Maine, had one case of dumb rabies in his practice in 1892. States that the Maine General Hospital had one case in a young man several years ago.

Dr. A. W. Clement, State Veterinarian, Maryland, reports about 30 cases brought to his attention officially.

Dr. Samuel S. Buckley, Veterinarian of the Maryland Agricultural Experiment Station, reports that at College Park, Maryland, several years ago, a collie dog bit three cows, a calf and a cat, all of which developed the disease.

Dr. Cooper Curtice, State Veterinarian, North Carolina, reports having noted one case in the human subject since he has been in that State.

Dr. W. H. Dalrymple, Louisiana State University and A. & M. College, has seen one typical case in a horse and at least half a dozen in cattle. Was informed by Dr. J. W. Dupree, Surgeon-General of the State, that the latter has had three cases in the human subject in his practice. In all cases the dogs which did the biting were preserved and died after showing characteristic symptoms of rabies.

Dr. F. A. Bolser, State Veterinarian of Indiana, reports three outbreaks of rabies in six years, affecting horses, mules, cattle and hogs. Two young men were bitten, badly lacerated, and died in great agony.

Dr. H. P. Clute, State Veterinarian, Wisconsin, reports 14 cases in dogs, sheep, cattle and horses. Rabbits inoculated at the State Experiment Station from the brain of a dog died of rabies in 18 and 19 days. Others inoculated from brain of calf died of rabies in 21 and 22 days.

Dr. A. T. Neale, Director Delaware Agricultural Experiment Station, mentions death from rabies of three or four cows in one herd. Dogs and rabbits were inoculated from the medulla of one of these cows and developed the disease. A dog at the station which was bitten by a strange dog became affected with rabies. Diagnosis was proved by inoculating rabbits. One case in a horse, not tested by inoculation.

Dr. M. E. Knowles, State Veterinarian, Montana, has seen about 60 cases of rabies in fifteen years, of which 53 were brought to his attention officially.

Dr. J. W. Elliott, State Veterinary Surgeon, South Dakota, has had as many as 100 cases brought to his attention in the last two years, mostly in cattle, and the disease could be traced to the bites of affected dogs.

Dr. G. T. Seabury, State Veterinarian, Wyoming, has seen three cases in dogs. Knows of a case in man caused by bite of a skunk.

Dr. Sol Bock, State Veterinary Surgeon, Colorado, has seen at least 50 cases in the last year.

Dr. Paul Fisher, Kansas State Agricultural College, reports a case in a horse in 1897. Rabbits inoculated died in 30 days of rabies.

Dr. A. T. Peters, Animal Pathologist, University of Nebraska, reports about eight different outbreaks recorded there. In one outbreak a dog bit several other dogs, a cow and a horse. The cow was qnarantined and died 31 days afterwards of rabies. The horse was but slightly wounded and developed rabies after about 200 days.

Dr. L. L. Lewis, Department of Veterinary Science, Oklahoma Agricultural and Mechanical College, states that two cases of rabies have come under his observation since he has been in that position.

In the District of Columbia the first investigations by the Bureau of Animal Industry were made in 1893; they were discontinued during 1894, and were taken up again in the fall of 1895, since which time cases of canine rabies have been demonstrated every year. There have been sent to the laboratory by the Health Department a number of dogs each year that were suspected of rabies. As all such cases which have occurred have not been sent to the laboratory, it cannot be said that we have discovered all of the cases of rabies which have occurred. The number of demonstrated cases of rabies in dogs in the District of Columbia is as follows: 1893, 11; 1895, 2; 1896, 5; 1897, 3; 1898, 7; 1899, 19; 1900, to July 31, 29. This gives a total of 76 cases in dogs. All of these cases have been tested by inoculation and have given positive results. In addition to these figures a certain number of other animals have died of rabies.

Seven deaths of persons from rabies are recorded by the Health Department of the District of Columbia since 1877. In two cases the diagnosis was proved by rabbit inoculations.

These figures do not indicate that rabies is such a rare disease as is alleged. So far from its being true that not one case in a million supposed to be rabies is really that disease, we have found more cases of rabies than were supposed to occur —not even the most sensational newspapers in our city have had as many reports of rabies in dogs as were actually found by these tests.

THE DIAGNOSIS OF RABIES.

The question has been raised as to whether the tests by the inoculation of rabbits and guinea pigs on the surface of the brain with emulsions of the medullas of suspected animals is a reliable indication of the existence of rabies. The editor of one of our veterinary journals says: "Is it not about time to give this subject a rest until more real scientific work is done in this field of research and some more accurate work completed beyond those tests on rabbits and guinea pigs, so lacking in conclusiveness to a majority of scientific minds?"

It certainly must be well known to the writer of that editorial that any doubts as to the reliability of the test by inoculating rabbits and guinea pigs may be very easily dispelled by returning to the old method of inoculating large animals in the skin or muscular tissue with the saliva or with the brain or spinal cord of affected individuals. The experiments recorded by Zinke, Count Salm, Berndt, Hertwig and Rey, which are quoted above, show with what certainty the saliva of rabid dogs produces rabies in dogs and sheep. These experiments have been repeated and confirmed by numerous investigators in recent years. It is not necessary to use emulsified medullas to obtain positive results; it is not necessary to inoculate intracranially; it is not necessary to use rabbits and guinea pigs. This method has simply been adopted for ordinary use because of its convenience and because it produces disease in a maximum number of subjects after a minimum period of incubation. The reliability of the method has been abundantly proved and the results correspond both with the post-mortem indications and with inoculations of larger animals in the skin and muscles. Those who habitually use small animals, inoculating subdurally with medulla emulsion as a test, and who have from time to time confirmed their results by inoculating larger animals by various processes, have confidence in this method. Would it not be well for those who lack experience to arrange to have some comparative trials of different methods made before they discredit modern science and modern laboratories by publicly expressed doubts? Moreover, the facts do not warrant the statement that the method of diagnosis in general use is lacking in conclusiveness to a majority of scientific minds.

Permit me to relate briefly a typical case of rabies which occurred in the District of Columbia. A dog broke the chain with which he had been fastened and escaped from its owner's premises in Georgetown about 11 A. M., April 27, 1900. It ran for about two hours, covering six or eight miles. During this time it attacked fourteen persons and succeeded in biting two. It bit two horses and four dogs and attempted to bite several other animals, and was finally killed by a man whose brother it was viciously attacking. The post-mortem examination of this dog indicated rabies. Inoculated rabbits died of rabies. One of the horses which was bitten in the nose was taken to the experiment station of the Bureau of Animal Industry for safe keeping. This horse developed rabies June 4, after an incubation of 38 days. The disease was very intense, the animal violently kicking, pawing, and tearing its flesh with its teeth. It died June 5. Two sheep were inoculated with an emulsion of the medulla of this horse. With one the virus was injected at the base of the ear, with the other it was injected into the connective tissue behind the right shoulder. The former sheep remained well; the latter showed symptoms of rabies July 1, after an incubation of 26 days. The first day of its illness this sheep was very vicious, attacking everything that came into its stall; if sticks were held towards it, it would strike them with its head so violently as to knock them from the hands of a strong man; it also snapped and bit at sticks very much as would a vicious dog. The second day it was down on its side, paralyzed and unable to get up. It died July 2.

If this disease, which developed in a dog, which was communicated by biting to a horse and which was inoculated by virus taken from the medulla upon rabbits and a sheep, was not rabies, what was it? Will those who express doubts as to the existence of rabies kindly inform us where in the veterinary literature of the world a disease other than rabies has been described which includes the features shown by these animals; a disease starting with the dog, communicable by biting, and by inoculation with the fresh medulla, having 26 to 38 days incubation, characterized by excitability, viciousness and paralysis, and ending in death in the course of one or two days? The speaker can only refer these characters to one disease, and that disease is rabies. The nature of the disease was clearly indicated by the post-mortem examination of the dog and by the inoculation of rabbits. It was unquestionably the same disease as affected the other dogs tested in the laboratory and to which reference has already been made.

The assertion made by a few individuals that an identical disease may be produced in experimental animals by inoculating subdurally with brain substance from healthy animals or even with inert substances is not supported by the facts. That paralysis and death may be caused by simple injuries to the brain is evident; but the animals so injured do not show the long period of incubation of rabies; they do not present the symptoms of nervousness, restlessness, irritability, viciousness, fury and paralysis, in succession and leading to death in a few days after the appearance of the first symptoms; they do not develop virulent saliva by which the disease may be communicated from animal to animal by means of subcutaneous or intramuscular inoculations. That is, rabies is a contagious disease, the most prominent characteristic of which is the virulence of the saliva; and paralysis produced by mechanical injuries to the brain can no more be accepted by pathologists as rabies, than can ulcers in the nose produced by caustics be accepted as glanders, or than inflammation of the lungs produced by the injection of oil of turpentine can be accepted as contagious pleuro-pneumonia.

RABIES IN MAN.

Admitting the existence of rabies in dogs and other animals, is the disease communicable to man? Are we to accept the statement so frequently made that all of the alleged cases of rabies in man are nothing more than a mere nervous affection developed as the result of worry and fear—the so-called lyssophobia? The men who make such a statement must either be very ignorant of comparative pathology or they must be very reckless in their assertions. Let some person who holds these views tell us of a single disease which is communicable between so many species and such unrelated animals as the horse, the ox, the sheep, the pig, the dog, the rabbit, and the guinea pig, and which is not at the same time communicable to man. One of the commonest diseases affecting unrelated species of animals is tuberculosis. It is also the commonest disease of man. Another disease affecting all warm-blooded animals is anthrax. It is easily communicable to man. Glanders, a disease of the equine genus, may be communicated to dogs, cats and other carnivora, and to guinea pigs, and with difficulty to sheep, goats and pigs; it is not communicable to cattle, yet it readily affects man. Actinomycosis affects cattle, swine, horses and some other animals, and to this disease mankind is also susceptible. Cow-pox affects horses and cattle and is easily transmitted to man. Aphthous fever, though more particularly a disease of ruminants, affects also horses, dogs, cats, pigs and poultry; it is frequently communicated to man. Tetanus affects widely separated kinds of animals and attacks mankind. Malignant œdema is a disease of various species of animals and also of man. This covers the communicable diseases other than hydrophobia which affect widely separated species of animals. The rule in comparative pathology, therefore, is that a disease which may be communicated to unrelated species of animals may also be communicated to mankind.

It is easily shown by inoculation experiments, which may be repeated at any time, that rabies affects as wide a range of subjects in the animal kingdom as do any of these diseases; it is not confined to domesticated creatures, but develops in wild animals, birds and monkeys. All analogy, therefore, would lead us to conclude that mankind should be susceptible to it. Add to this analogy the observation of thousands of instances of supposed transmission covering a period of more than two thousand years, and the case becomes so strong that it requires much more than a mere assertion to disprove it.

We have, however, more evidence than this to prove that hydrophobia in man is not a mere mimetic disease. In the great debate on the subject of rabies which took place in the Paris Academy of Medicine in 1863, M. Tardieu, referring to the official statistics of France, said: "We owe to them the ruin of a serious prejudice perpetuated by the obstinacy with which certain physicians have held to the non-existence of the rabies virus, offering themselves with a courage worthy of a better employment for an experiment in which they would be the first victims. Rabies, which for them is but a convulsive nervous affection originating most often from fear, the statistics show us developing at an age when the moral emotions are not yet born, when the imagination does not remain stricken with chimerical terrors—in early infancy. More than thirty cases of rabies have been noted with children under five years, some of them of two and three years."* Since that time the communication of the disease to young children, some of them less than one year old, has frequently been recorded, but no one has explained how this could have occurred if the disease was simply due to the imagination.

The proof of rabies in mankind which appeals most strongly to the scientific man of to-day is the experimental demonstration. The comparative pathologist has always accepted such a demonstration as incontestable with other diseases; is there any reason why it should not be equally convincing with rabies? When we have questioned the diagnosis of glanders, we have inoculated a well horse from the suspected one, and if glanders developed in the inoculated animal we have concluded that the horse from which the inoculation was made must have had glanders. A disease cannot be communicated by inoculation if the individual from which the inoculation is made does not have it. Inoculation has, consequently, become the supreme test of anthrax, pleuro-pneumonia, foot-and-mouth disease, tuberculosis, Texas fever, and other contagious diseases. Now, what does the experimental method show about rabies in man?

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* Tardieu. "Discussion sur la rage." Bul. de l'Acad. de Med., 1863, p. 1152.

Magendie says: "We have (M. Dupuytren and I) injected in the radial vein of a young man affected with rabies about eight grains of gummy extract of opium, without any apparent result. I inoculated, with my *confrère* Breschet, the saliva of this patient upon a dog, placing it under the skin of the head (*sous la peau du front*), and the animal became rabid at the end of about a month. Two dogs which were bitten by this one also became rabid after forty days. These last bit several other dogs, but without any bad result. In this series of experiments rabies was arrested, then, of itself at the third generation." *

Earle, Hertwig and Renault made similar inoculations from affected persons to rabbits, and obtained identical results. In recent years, since the subdural inoculation of rabbits has been a recognized method of diagnosis, there have been many inoculations of these animals with virus from the human subject which have caused the disease. There have been two cases in Washington in which the diagnosis of rabies was confirmed in this manner; and Dr. Law, as reported elsewhere, has inoculated both dogs and rabbits with human virus and produced the disease.

How can this evidence be set aside? How can such arguments be answered? They are not answered except by blatant assertions unsupported by facts. When the saliva of a man produces rabies in the dog upon which it is inoculated, it is certain that the man had rabies. There is no other conclusion admissible. The virus of a contagious disease cannot be originated *de novo* as the result of anxiety and fear.

We must conclude, therefore, that rabies is communicable to man, and that the evidence of this is overwhelming and unimpeachable.

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* F. Magendie. *Journal de Physiologie Experimentale*, 1821, Vol. 1, p. 42.

THE PREVENTION OF RABIES.

Admitting that there is such a disease as rabies, admitting its frequency, admitting that it is communicable to man, what measures are indicated for its repression and eradication? The measures generally adopted have for their object the reduction of the canine population rather than any direct influence for the destruction of the virus or the prevention of contagion. Such measures consist in the levying of a tax upon dogs, with a requirement that the dogs wear a numbered tag to show that the tax has been paid. To prevent violations of this regulation, it is usual to have a dog-catching force whose duty it is to seize all dogs found in public places without tags, and if these are not redeemed within a specified time, to destroy them.

The effect of such a regulation depends very much upon the amount of the tax and the energy and thoroughness with which the measure is enforced. Usually the requirements of this law or ordinance are evaded by a large number of dog owners, and it is common to see on the streets dogs without tags. There is seldom an adequate force of dog catchers, and the sympathies of many communuities appear to be with those who violate the law rather than with those who endeavor to enforce it.

When there is an unusual prevalence of rabies among dogs, or when unfortunately some person contracts the disease, particularly if that person happens to be well known or prominent in the community, there may be a temporary exhibition of strict and energetic enforcement of the regulations. But as soon as the public alarm subsides, the efforts are relaxed, the dog-catcher disappears, the dogs are seen upon the streets with or without tags, and all things go on as before the panic occurred. While the number of dogs is thus periodically reduced somewhat, it is seldom that this reduction is sufficient to have much effect upon the propagation of the disease. It is probable that the tendency at such times to keep dogs confined in order to prevent them from being seized, has much more influence in arresting the propagation of rabies than has the mere reduction in numbers.

In nearly all cases these indirect measures have been proven insufficient and unsatisfactory. What other disease would we attempt to stamp out by simply killing off one-fourth or one-third of the animals of the species affected? And if this measure is not efficient with other contagious diseases, why should we expect it to be with rabies? It appears self-evident from a sanitary point of view that there should be some direct measures instituted to prevent the propagation of the contagion. Such a measure would be the quarantine and confinement of all dogs for a sufficient time to cover the ordinary incubation period of rabies. As the enforced and continuous confinement of dogs without open air exercise for a prolonged period is detrimental to the animals, they may be allowed in public places under such conditions as will absolutely prevent them from biting. That is, the animals should wear an efficient muzzle, or they should be muzzled and led in leash. As rabies is only propagated in nature by biting, such a regulation, if thoroughly enforced, would at once stop the transmission of the disease, and soon lead to its disappearance.

When this measure is inaugurated, however, it is at once opposed by a large class of citizens who hold it to be cruel and unnecessary. Some muzzles are unquestionably cruel, but a properly made muzzle is not cruel, nor does it greatly inconvenience the dog after he becomes accustomed to it. The authorities should, therefore, prescribe the kind of muzzle to be used, and should select one which covers the mouth with a wire cage, so as to prevent biting, but without interfering with the movements of the mouth and the ingestion of liquids.

There have been many who have denied the utility of the muzzle, the strongest argument being that dogs do not wear the muzzle at home, and when they develop rabies and escape, it is always when they are unmuzzled. Admitting the force of this argument, it is, nevertheless, a fact, that if all dogs were required to be muzzled when in public places, the appearance of a dog without a muzzle would at once attract attention, leading persons to avoid it, and causing its early seizure by the authorities. Children might be instructed that an unmuzzled dog was dangerous, and that they should keep at a distance from it, and especially that they should never touch or fondle such an animal.

The results which have been obtained by muzzling, justify its enforcement wherever there is an outbreak of rabies. Most of us have heard of the experience of Berlin with this measure about the middle of the century. From 1845 to 1853, 278 rabid animals were received at the Berlin Veterinary School. This is an average of 35 a year. From March, 1852, to the same month in 1853, the number was 82, and from March, 1853, to the end of July, there were 37 more. On July 20, it was ordered that the use of the muzzle should become general. From July to the close of the year but six cases were admitted. Only four cases were observed in the whole city during 1854, and but a single case in 1855. For the seven years following there was not a single case recorded.*

While some have attributed the disappearance of rabies from Berlin at the time mentioned to other causes, muzzling has been adopted in Germany as the principal reliance in repressing this disease. Consul-General Mason reports from Berlin to the State Department that "in Berlin, Frankfort, and, so far as I know or can ascertain, in all cities and large towns in Germany, dogs are required to be muzzled whenever they are on the street or public place, and this regulation is enforced in cities even when the dog is led or held in leash by the owner, or is harnessed for working purposes to a cart or other vehicle." †

In Great Britain the results from enforcing the muzzling order have been phenomenal both in the opposition encountered by the authorities and in the successful eradication of the disease. The number of rabid dogs officially reported was, in 1887, 217; 1888, 160; 1889, 312. In the last mentioned year muzzling was adopted, and the number of cases fell to 129 in 1890, 79 in 1891, and 38 in 1892. Then, owing to persistent opposition, muzzling was stopped, and the effect of withdrawing this measure was at once seen in the increase of rabies. In 1893 there were 93 cases, in 1894, 248, and in 1895, 672. At this point, owing to public alarm, muzzling was again enforced, reducing the number of cases in 1896 to 438, in 1897 to 151, in 1898 to 17, in 1899 to 9. As no case was discovered from Nov., 1899, to March, 1900, it was believed by the veterinary officer that the disease had been extinguished in Great Britain.

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* Renault, cited by Bouley in "Rapport sur la rage." Bul. de l'Acad. de Med. Paris, 1863, p. 725.

Fleming, "Rabies and Hydrophobia," p. 365.

† Consular Reports, June 19, 1900.

No stronger evidence in favor of muzzling could be asked for or desired than this complete success in an extensive and thickly populated country like Great Britain.

A BACILLUS FROM AN INFECTIOUS VULVAR DISEASE OF CATTLE.

By Joseph W. Parker, D.V.S., St. Joseph, Mo.

Read before the Missouri Veterinary Medical Association, at St. Louis, Oct. 3, 1900.

Under the title "A Cattle Disease in Marshall County, Kansas" (see Fifteenth Annual Report of the Bureau of Animal Industry, U. S. Department of Agriculture), an apparently contagious pustular disease, with localization chiefly on the vulvæ of cows and heifers, is described (February, 1898) by Dr. Rice P. Steddom, an Inspector in the Bureau. In this outbreak only females were affected, and the disease certainly was not communicated by copulation. Usually after the bursting of the pustules the resulting ulcer had a tendency to slough extensively, discharging a sanious fluid. The contagious element and the mode of communication were not determined.

In the fall of 1899 an outbreak of a disease similar in character occurred near Westmoreland, Kansas. Both cows and steers were affected, on the latter the ulcers being located above the ischial tuberosities, being similar to the ulcerations on the females. In both outbreaks the disease yielded readily to treatment (silver nitrate, antiseptics).

On December 14, 1899, Dr. Steddom, who also made investigation of the latter outbreak, furnished me specimens of diseased tissue taken from the margins of the ulcers. The specimens had been taken from the living animals the preceding day and were in good condition, having been kept at a low temperature. On the evening of December 14th I made two stab cultures on agar agar, from internal portions of the two larger pieces of tissue (about 3×2×1.5 inches), from different animals, obtaining pure cultures from each.

The organism isolated is a bacillus resembling, but somewhat smaller than, *Bacillus typhosus.* It develops readily at room temperature or at 90° F., on agar agar, bouillon, blood serum, also on gelatine.

On agar agar it develops a white film which spreads rapidly and uniformly over the surface; a slight growth develops slowly along the line of puncture. The surface growth is moist, the agar agar apparently slightly liquefied, as indicated by the touch of the platinum wire. The bacilli usually lie singly, though sometimes forming chains of five or six. Sporulation is suspected, but not demonstrated.

On bouillon it forms a characteristic white film on the surface, clouding the medium within forty-eight hours. Examined in hanging drop, the bacillus is seen to be actively motile. The length varies from slightly ovoid to twice the width of the bacillus.

On blood serum a white growth forms which penetrates more deeply than on agar agar, and liquefies the medium slowly.

On nutrient gelatine a cup-shaped depression was formed, but if liquefaction occurred vaporization immediately followed, for no liquid was visible in the culture tube.

The organism stains with a watery solution of methylene blue or fuchsin, but best results were obtained by use of Ziehl's solution, staining one minute. In some of the specimens stained, the bacilli showed unstained areas, probably indicating spore formation.

On December 29, 1899, a rabbit was inoculated subcutaneously (behind left shoulder) from first culture on agar agar. Sixty hours afterward the rabbit was found dead. Post-mortem showed inflammation and gelatinous infiltration (no pus formation) about two inches in diameter, surrounding the point of inoculation and extending throughout the thickness of the costal wall; visceral organs and blood were normal. Two agar agar cultures were made from different points in the inflamed sub-cutaneous tissue, as far as practicable from the point of inoculation. Both tubes developed pure cultures of the organism first isolated.

This study, while incomplete in itself, may be of help to some one else in determining the cause and nature of the disease. I am indebted to Dr. I. J. Wolf, of the Kansas City Veterinary College, Kansas City, Mo., for valuable assistance in the laboratory work.

ACUTE BOWEL TROUBLE.

By Dr. Horace Bradley, Windsor, Mo.

Read before the Missouri Veterinary Medical Association, Oct. 3, 1900.

The veterinarian's reputation depends largely upon his success in treating what his client terms colic.

Statistics indicate that about 15 per cent. of horses suffering from colic die, and about 40 per cent. of the death rate is from this affection. With this knowledge and the fact that a dangerous condition exists, is more apparent to the owners in these affections than to others.

We are not astonished that one who is able to properly diagnose and successfully treat these cases receives praise. The term colic has been applied to a variety of acute bowel troubles, due to widely dissimilar causes, and possessing but one common character, that of abdominal pain, having its origin in some portion of the digestive apparatus. This grouping of several diseases under one term has been made necessary because of our inability to always differentiate them during life. While each has characters and special symptoms in a measure peculiar to itself, which may lead to a probable or even a positive diagnosis, our negligence in not making continual research for these diagnostic symptoms and our failure to take advantage of opportunities of autopsies has resulted in our continual use of the empirical term colic, and has also led to a continual empirical treatment of the entire group by a common formula regardless of specific indications offered by each individual case. Under these conditions we find the treatment of acute bowel troubles unsatisfactory, and apparently a greater per cent. of cases recover without than with medication. The confusion in the treatment of this group of diseases is shown by the endless number of remedial agents used without any order. One will have the patient lie, another will have it stand, another walk, another trot or run, and some use external means of relief, as rubbing and applications of linaments, etc. Some rely on anodynes, some on sedatives, some on astringents, carminatives, stimulants, and more upon laxatives and purgatives and even drastics, and I must say some combine several or many or them in inextricable confusion or give together two diametrically opposite drugs in such proportions as to partly or wholly counteract each other. We have permitted empiricism to displace rational medicine to an unjustifiable degree. Since the importance of a more thorough knowledge along this line is of paramount interest to our reputations, let us hereafter reach out for a more classical diagnosis and treatment of these bowel troubles.

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
of the McKillip Veterinary College, Chicago, Ill.

CÆSARIAN SECTION (*Concluded*).

Obstetrical cases that require Cæsarian section often present indications for additional interference, such as the removal of the uterus (hysterectomy); removal of the Fallopian tubes and ovaries (*salpingo-oöphorectomy*), or ovarectomy. The indication for this additional surgical interference depends upon the conditions revealed when the operation (Cæsarian) is performed. When the uterus or its appendages are injured or diseased, they should be removed. The removal of the uterus as a sequel of Cæsarian section was first done in human surgery in 1876 by Porro, and since has been known as Porro's operation. The operation may be described as Cæsarian section with the removal of the uterus at the cervix, along with all its appendages.

Parietal Incision is the same as in Cæsarian section, except that it should be made a little longer and nearer to the median line, especially when the whole uterus is brought out of the abdominal cavity before incising it. The advantages of this method are, that it avoids the danger of uterine fluids escaping into the peritoneal cavity; this alone is very advantageous when the fœtus is dead and the uterus filled with putrid fluids; by this method of handling the uterus, it makes it easier to arrest hæmorrhage; but this method, however, has not met the approval of all surgeons; it has been greatly modified, and in most instances is incised and emptied before removing it.

Incision Into the Uterus may be made in most any direction; if the uterus is to be amputated it can be incised longitudinally, transversely, or both, as the case may require. The site of the incision should be selected, limited and directed by the location of blood vessels; the incision made as rapidly as possible, either with a pair of scissors or by tearing; but before doing this tampons or sponges must be placed around the uterus in such a manner that they will prevent the fluids entering the cavity. When the uterus is incised, the surgeon should remove the fœtus and give it to some attendant and then direct his atten-

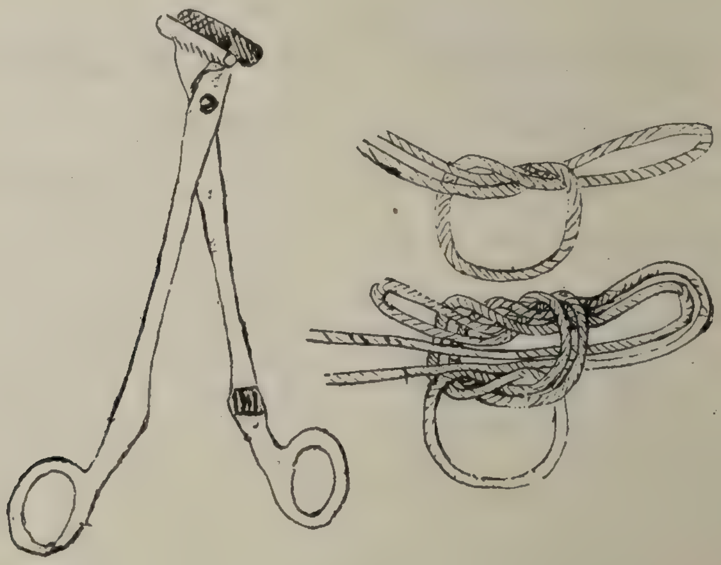


FIG. 31.

tion to the completion of the operation. By removing the fœtus from the uterus, it is more easily handled than when excised without doing so.

Placenta.—The placenta may be removed from the uterus before excising it, but in most cases it is not necessary. The only reason why it should be removed is that it reduces the size of the uterus and makes it easier to handle; while, on the other hand, it is a loss of time and increases the danger of hæmorrhage, and for this reason it is generally considered more practical to leave it intact and remove it with the uterus.

Hæmorrhage may be controlled by the application of a T-shaped forceps (Fig. 31–a) to the edge of the wound, which will quickly arrest it; by applying a temporary ligature around the cervix that can be easily removed (Fig. 31-b); or by inserting the hand into the abdominal cavity and compressing the cervix.

The Removal of the Uterus.—The operation is more simple in quadrupeds than in bipeds; the uterus is not so muscular and the pedicle does not require so much attention as is given to it in human surgery.

The uterine and ovarian arteries are carefully and substantially ligated, and the uterus amputated as near to the os uteri as possible. The mucous membrance of the pedicle or stump should be curetted, and a tampon placed into it, so that it can be removed from the vagina; the anterior part of it must be carefully trimmed and the lumen closed by a catgut suture; and, when all hæmorrhage is arrested and the edges of the wound rendered aseptic, the peritoneum should be sutured over the anterior part of it. The abdominal cavity must be thoroughly irrigated and closed, as in Cæsarian section.

After-treatment.—Pain must be relieved by hypodermic injections of morphia; the bladder must be emptied at regular intervals; the tampons must be changed every day; the external parts must be kept clean; occasional vaginal douches must be given; and a rise of temperature should be promptly met by ascertaining the cause, and the use of antiseptics. Peritonitis is the most dreaded sequel, and when known to exist should be treated with cold packs, turpentine, enemata and saline aperients. Rectal nutrient and stimulating enemata are necessary to maintain and strengthen the depleted system.

Ovarectomy of the Sow.—The operation, though comparatively simple, requires a certain amount of practice to give to an operator an envious degree of dexterity. Many of the common spayers have acquired the precision and dexterity required to make a favorable impression upon their clients, and get favorable results from the operation, while the veterinarian with his knowledge of its surgical anatomy and the technique of the operation without the required practice is generally a bungler. Every young veterinary surgeon should familiarize himself with the operation and acquire some degree of proficiency in performing it; besides he should acquaint himself with its effects, the sequelæ of the operation, and be able to clearly demonstrate its indications and contra-indications. He should carefully study its physiological effect; the proper age of the sow and the most favorable season for the operation, together with all the conditions that follow the operation that are profitable and advantageous.

Sows of most any age bear the operation without a very marked depression, when they are properly prepared for the ordeal and the operation is well executed. Young sows between the ages of four and eight weeks, however, withstand it best. Sows should not be spayed during œstrum. Multipara endure the operation best about six weeks after parturition.

Preparatory Treatment.—Sows to be operated upon should not be fed during the last twenty-four hours previous to the operation, and should be kept in a pen or enclosure; this pen or enclosure should be clean, well bedded with clean straw or shavings. Even though aseptic measures cannot be carried out to the letter without great inconvenience, a degree of cleanliness will add to the comfort of the operator and his assistants. Just before the operation the sows should be driven out of the pen and given gentle exercise, which will induce them to defecate and micturate. During this time the pen or enclosure should be cleaned and rebedded; and sows returned to the pen.

Operation.—The method of restraint is a very important factor in spaying, and most every practical spayer has a method of his own, which is practically the same as all others with but a slight deviation to suit some particular step in the operation which he has adopted. Large sows should be caught and a rope looped around its upper jaw (Fig. 32), which when drawn will cause her to draw back, and while doing so can easily be thrown upon her right side; when cast some convenient method of securing must be improvised; if the animal is very strong a piece of timber or a ladder placed across its neck, with the weight of an attendant upon it, will in most cases answer the purpose. Smaller animals are best secured as follows: The

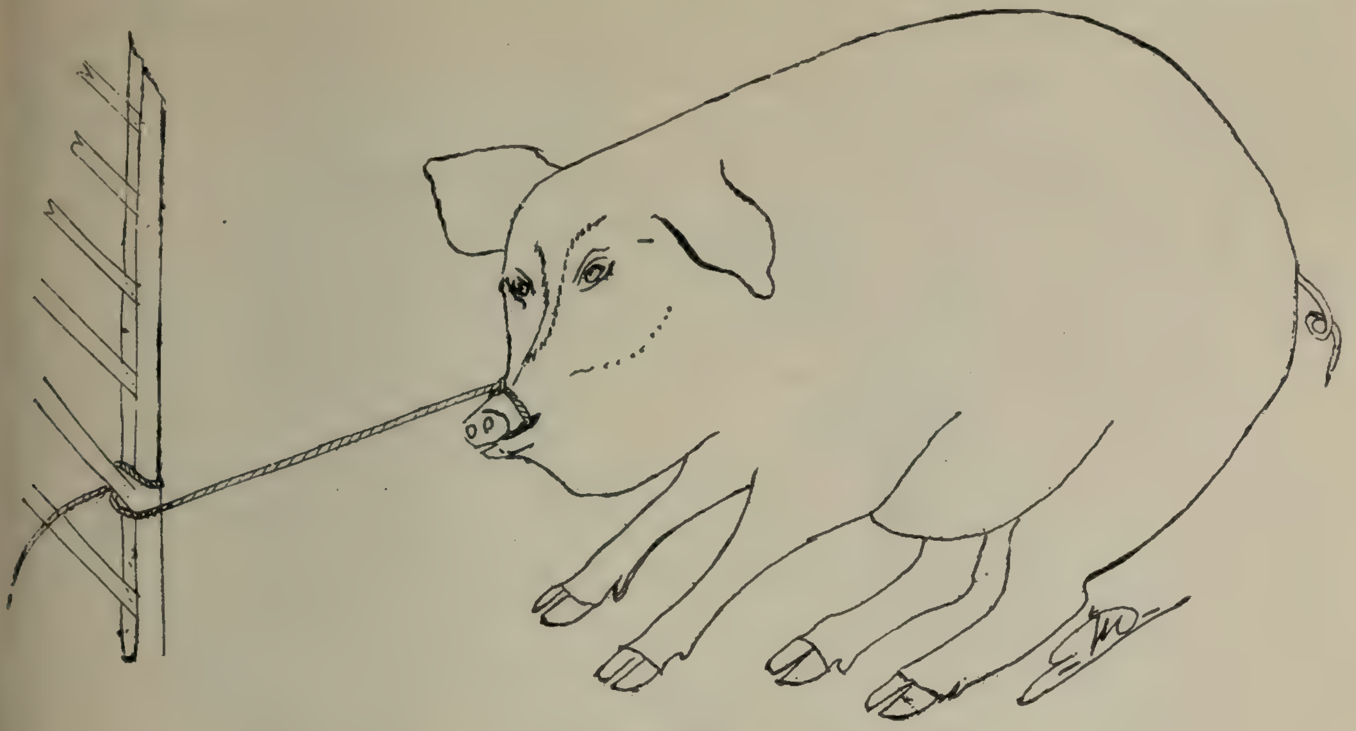
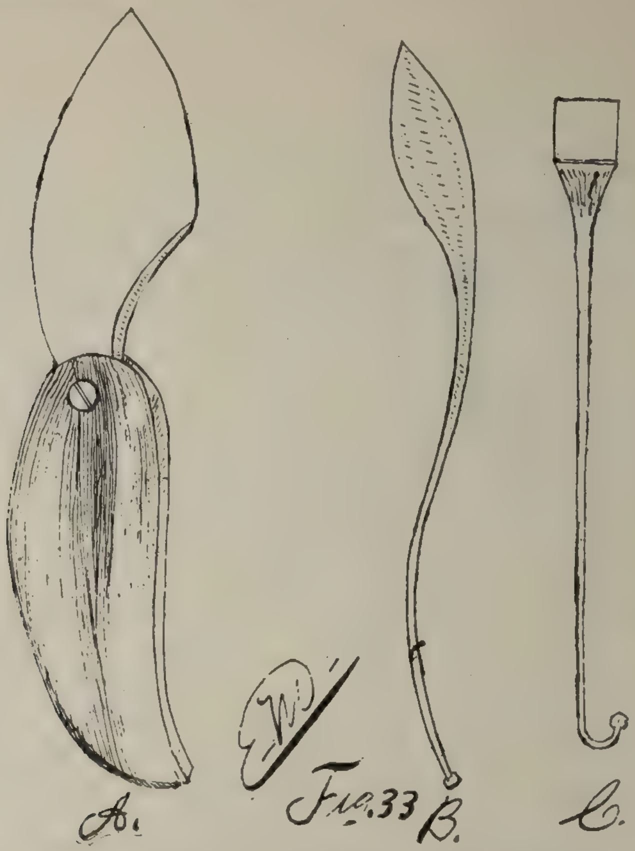


FIG. 32.
PRACTICAL METHOD OF SECURING A HOG.

operator should be seated upon a low stool and have the pig laid upon the right side with its posterior extremity to his left, and its back toward him; he then places his left foot upon its neck and his left under the right flank of the pig; and his assistant should draw the hind legs backward, which brings the back of the animal against his left leg and stretches the abdominal wall.

Technique of the Operation.—The first step to be taken in the operation is to shave the hair (bristle—this can be done with the spaying knife, Fig. 33–A); and next, wash the field where the incision is to be made with an antiseptic solution, following by making an incision in line with the fibres of the oblique muscles, near the external angle of the ilium and as deep as the peritoneum. Another method of opening the abdomen is to incise the skin and pierce the muscles and peritoneum with the forefinger of the right hand. This is a method adopted by many successful operators, and to facilitate the procedure, a small superficial incision is made into the muscular coat, and the forefinger of the right hand forced through it and the peritoneum with a short, forcible, rotatory motion; the opening is then enlarged by inserting the forefinger of the left hand and tearing the muscular coat and peritoneum, making the internal opening larger than the external one. The next step is to locate the ovaries and bring them out through the opening made in the abdominal wall; this is done by inserting the right forefinger into the abdominal cavity, following the



A, knife used for spaying sows; B and C, instruments for Chinese method of spaying sows.

wall, keeping the finger against the abdominal wall and the intestine against the back of the finger and extending it to the vertebræ near the opening of the pelvic cavity, and at the same time explore for the horn of the uterus, which in young animals is about the size of a "goose quill" and appears more indurated to the touch than the intestine. The horn when located is caught by flexing the finger and pushing its tip against the wall; when thus secured it can be brought to the external surface and held with the fingers of the left hand; the assistant then relaxes the hind legs and the right hand brings up the horn while the left takes it up until the ovary appears at the external surface, where the horn and ovary is held with the right hand, while the left forefinger brings out the right horn and ovary. In young sows the ovaries are cut off at the bifurcation, but in older ones the ovaries should be taken off by torsion, first one, then the other. The hind legs are relaxed; the viscera returned, and the wound sutured by applying two or three stitches. Small pigs are brought to their feet by the right leg, but larger ones should be brought to their feet by flexing them under the body and raising the posterior extremity. They should be placed in a clean pen or enclosure and fed lightly for two or three days. The stitches should be left in until they drop out of their own accord.

Special care must be taken to prevent undesirable sequelæ which may result from negligence or improper execution of some of the important steps which may appear unimportant during the operation ; such oversight, negligence or indifference is often the cause of slow recoveries ; the following mentioned in order of their importance should receive special attention :

(*a*) Pockets or sinuses in the edges of the surgical wound.

(*b*) Adhesions of the viscera to the abdominal walls in the *region* of the cicatrix.

(*c*) Hæmorrhage.

(*d*) Peritonitis.

(*a*) *Pockets or Sinuses.*—These are formed by separating the layers of the muscular coat from one another, or the muscular coat from the peritoneum or skin, by piercing the wall with the finger, which may tear the connective tissue that separates these structures from one another. To eradicate these sinuses the peritoneum and the muscular coat are torn beyond the extremities made in the skin. The lateral sides of the wound must be examined and all the sinuses and pockets destroyed ; unless these are properly treated before the wound is closed fistulæ are likely to follow.

(*b*) *Adhesions of Viscera.*—When any part of the viscera is sutured or enclosed in the wound by the stitches, it will unite with the wall at the cicatrix ; this condition may not prove serious, but nevertheless will impair the health of the animal and reduce its value. Upon post-mortem of spayed sows it is not uncommon to find a dilatation of the intestine anterior to this adhesion. Animals thus affected are generally not as thrifty as the remainder of the herd, but present no symptoms of disease. The horns of the uterus may also adhere to the wall at the cicatrix. The union of this viscus is not so serious as the one previously mentioned ; but in some instances the intestine passes over the horn and forms a loop which may become strangulated; however, this is not a common condition, but one found occasionally in abattoirs ; whether or not this change in the relation of the viscera ever proves serious, we are unable to tell.

(*c*) *Hæmorrhage.*—In young animals this is not an important factor, and demands but little attention ; if it is more convenient to cut the ovaries than to remove them by torsion, the operator need not hesitate to do so for fear of hæmorrhage ; but in old or pregnant sows, however, there is more danger of hæmorrhage than in the young ones, and it is necessary to take all precautions to prevent it. The ovaries in such cases must never be excised with a sharp instrument without placing a ligature around the ovarian ligament and arteries; the hæmorrhage following such a procedure is generally fatal. The proper way to remove them is by torsion, which invariably prevents hæmorrhage.

(*d*) *Peritonitis.*—This is not a very common sequel; but does occasionally follow gross neglect of cleanliness, such as the introduction of dirt into the cavity through the abdominal incision during the operation. Septic peritonitis may result from secondary abscesses which occasionally occur along the course of fistulæ located between the muscular coat and the peritoneum, and "break open" into the peritoneal cavity—the direction of least resistance—emptying their contents into the cavity. These fistulæ usually originate in sinuses or pockets in the lips of the surgical wound which were not properly treated before suturing the wound. Peritonitis seldom follows the operation except from these two accidents.

Complications.—The complications that may interfere with the operation or make the location of the ovaries difficult can be considered in the following order:

(*a*) Protrusion of intestine.
(*b*) Distended bladder.
(*c*) Rupture of the bladder.

(*a*) *Protrusion of the Intestine* usually occurs during the withdrawal of the horns and ovaries from the cavity; and in such cases the operation should be suspended until they are returned into the abdomen. This is sometimes a difficult task, especially when the intestine is tympanitic. As soon as they are returned the operation should be continued. In case of tympanites or when the intestine is filled with aliment, the location of the ovaries is made difficult by being crowded from their normal position, and for this reason it is absolutely necessary that sows that are to be spayed should not be fed during the last twenty-four hours prior to the operation.

(*b*) *Distended Bladder.*—A distended bladder crowds the intestine through the incision; changes the relation of the uterus and its horns and ovaries; and, like tympanites and loaded intestine, makes the location of the structure almost impossible, and even when found it may be a difficult task to draw them out of the cavity. When the bladder is distended it is necessary to empty it before proceeding any farther with the operation; this can be done by placing the hand upon the region of the bladder and applying gentle pressure.

(*c*) *Rupture of the Bladder.*—The bladder when distended may be punctured with the finger in piercing the muscular coat and peritoneum, which if it is empty is impossible. The accident, however, is generally considered unavoidable on the part of the operator, but with the proper precautions a great percentage of such accidents can be avoided. The sows to be spayed must be given a little exercise just before the operation, which will induce omichesis; besides should the operator notice that it is distended he should empty it by applying pressure to it with the hand before piercing the abdominal wall, but this condition is seldom noticed before the abdomen is opened, and in opening it is when the bladder is generally ruptured.

Two Methods of Performing Ovarectomy in the Sow. Translated from Möller's "General Surgery," by J. W. Schumacher.

The ovaries of the pig being fastened to the long intestinal horns of the uterus makes it possible (1) to reach both ovaries from one flank, and (2) to introduce a probe into the uterus, which enables the operator to draw the ovaries to an opening in the linea alba.

According to this, two operations are in use; one through the flank and another through the linea alba.

The first operation is executed in the following manner: the pig is placed on its right side in front of the operator, who is seated on a low chair; an assistant holds the hind legs in extension, while the operator holds the animal to the ground with his right foot. The hair is shaved from the field of the operation; an incision is made 3 to 4 cm. anterior to the point of the hip, in the direction of the external oblique muscle, that is, in a line from the backbone to the kneefold. The incision is made large enough to admit the right forefinger to pierce the muscles and peritoneum. This must be done quickly, vertically to the wall; and during an inspiration, or while the pig is squealing, in order to prevent the loosening of the peritoneum from the wall. The finger so introduced into the cavity searches for the left ovary, which is located between the lateral angle of the ilium and the median line of the sacrum. The ovary is about the size of a bean and hard to the touch. The pig will usually squeal when the ovary and uterus are touched, and this is an important feature in directing the finger.

The left ovary is brought outside of the wound and held with the right hand, while the forefinger of the left hand gradually brings the horn through the wound into the right hand,

and as soon as the bifurcation of the uterus is reached, the right horn is brought out of the cavity in the same manner. Both ovaries are then cut, pinched off with the finger-nails. In young sows the whole uterus can be taken off without damage; but in older ones only the ovaries should be removed, and the body of the uterus should not be drawn out of the cavity. The horns of the uterus should be returned into the cavity; the wound stitched; the animal turned into a clean cool stall; and they should receive nothing but clean water for the next twelve hours, followed by easily digested food. Light exercise may be given after the first day.

CHINESE METHOD.—The operation through the linea alba is not performed so often and is not so difficult for an inexperienced operator as the one just described.

The pig is suspended by the hind legs, or held in a dorsal position upon a table. An S-shaped probe (Fig. 33–B) is inserted into the uterus, passing it along the superior wall of the vagina to prevent it from entering the urethra, and into the uterus through the cervix. A chisel-shaped knife (Fig. 33–C) is pressed through the abdominal wall close to the linea alba, or laterally to the last left teat. The dull hook is then introduced into the cavity and a search made for the uterus, which is easily found and brought into the wound. The first ovary is brought outside and detached; the second is treated in the same manner. The wound is stitched, and it usually heals by first intention. The complications are hæmorrhage and peritonitis. The first causes death within the first twenty-four hours; the second in from three to thirty-six days. Torsion is the best remedy for the first complication, and antiseptics for the second.

OÖPHORECTOMY (OVARIOTOMY) IN THE BITCH.

By LEON W. YOUNG, M.D.C., PROFESSOR OF CANINE SURGERY, MCKILLIP VETERINARY COLLEGE.

The term ovariotomy in the medical vocabulary has been forced into meaning the extirpation of an ovary on account of some disease of its own structure. The word itself is a barbarous compound of Latin and Greek, meaning ovary and an incision. It occurs to me that oöphorectomy (meaning to cut out the ovary) is the proper term, and far more appropriate to the operation usually performed by our profession. In modern usage by the medical profession, the term ovariotomy is limited to the operation for the removal of an ovary greatly enlarged by some disorder. By oöphorectomy is meant the operation for the removal of diseased ovaries, or of both ovaries for the purpose of causing menopause, while the ovaries may or may not be diseased.

The structure and function of the ovary is well known. But a slight reference to its covering may not be out of place, as it can be recognized by this. Though the investing membrane it derived from the peritoneum its structure is materially differene. First, in place of the endothelial cells of the peritoneum, we find a single layer of columnar cells. This is known as the germinal epithelium of Waldyer, and it is to this membrans that we attribute the dull grey color of the ovary.

The exact location of the ovary in the dog I have never seen described, and I know of no authority who has given an opinion as to what he regarded as the normal position. Among the bitches, wherein I have had opportunity for observation, I have never found the uterus lying symmetrically in the middle of the pelvis, but always to one or the other sides, most often on the right, and I find that the positions of the ovaries are varied directly proportional to the deviation of the uterus, in which case the left ovary is pulled upon by the uterus, and lies obliquely, the ovary on the opposite side lying with its long axis in a horizontal position. The Fallopian tubes pass over the ovaries in each case, and turning upon themselves enter on the anterior face.

In addition to this anatomical reference, it appears to me that many practitioners could spend many interesting and profitable hours in the study of canine anatomy, for with each succeeding year the dog is becoming more popular, and his place in the home, and one might almost say family, warrants a considerable expenditure on the part of his owner. His treatment naturally falls to the veterinarian, and unfortunately, he confines his efforts to the herbivora, and little thought is given the dog. The treatment and surgery of the dog is a special study, and the sooner it is recognized by the profession, the better it will be.

Causes of Death Following the Operation.—The most common causes of death, in their relative importance, are hæmorrhages, peritonitis, either septic or traumatic, shock and exhaustion. And to prevent these should be the operator's first aim. And, in addition to this it might be well to add, that success grows with each case, and by operative skill, cleanliness, and strict antiseptic precautions, the fatality has been reduced to an average less than that of any other equally severe surgical operation, which is worthy of note, when we consider the size of the wound, the importance of the involved parts, and the delicacy of the exposed structures.

I regret to feel at liberty to criticise the profession at large, but it does not seem to me that the majority of practitioners attain the success they should in this operation. Probably for lack of proper instruction in our colleges, uncleanly habits, and absolute indifference because the patient is a dog. It was with actual disgust that I witnessed the "spaying" of a bitch at the meeting of the U. S. V. M. A. at Omaha two years ago. The operation was performed on a heap of manure in the open air, with the thermometer registering about 40° F. (estimated).

I never heard or saw in print the result of this piece of barbarous butchery, and do not believe the profession can receive any betterment by permitting such outrages before a representative body.

My own practice is to adhere to every detail of antiseptic surgery, which can be followed out only in an appointed operating room.

Preparation of the Patient for the Operation.—The bitch should be in good health (unless the operation is being performed for some pathological cause), and if not, the operation should not be performed. Saline laxatives should be given for a day or two before the operation, and the diet should consist of milk, eggs, etc.

An operation of election should not be undertaken during a menstrual period. However, when the operation is to be performed to relieve some pathological condition, no attention should be paid to the factor of menstruation.

On the day previous to the operation, the dog should be bathed, and the abdomen shaved from the point of the sternum to the pelvis, and about four inches wide. The animal should not be fed on the day of the operation.

The following articles should be provided:

Two ordinary hand basins, one containing 15 gauze sponges in a 1 to 2000 sol. of hydg. chlor. at a temperature of 115° F. (to be used for sponging the wound), and the second for washing the hands of the operator. A metal cone for administering the ether, absorbent cotton, flexible collodion, ether, a four-yard rolled bandage, and an eight-string bandage (with four holes cut, one for each leg, the strings to tie over the back), and the following instruments: 12 artery forceps, 1 scalpel, one pair of scissors, one probe, three threaded needles and one wire ecraseur, all of which should be boiled for twenty minutes at some time previous to the operation.

At the operation these should be submerged in a shallow

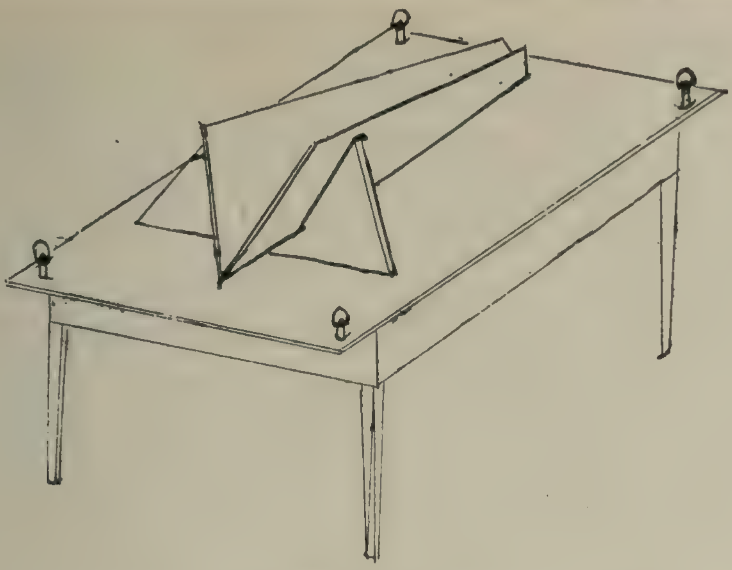


FIG. 34.
YOUNG'S CANINE OPERATING TABLE.

pan or tray containing a 5 per cent. solution of carbolic acid.

The operating room should be at a temperature not less than 75° F., and if of a dusty character should be well sprinkled with a mild solution of creoline.

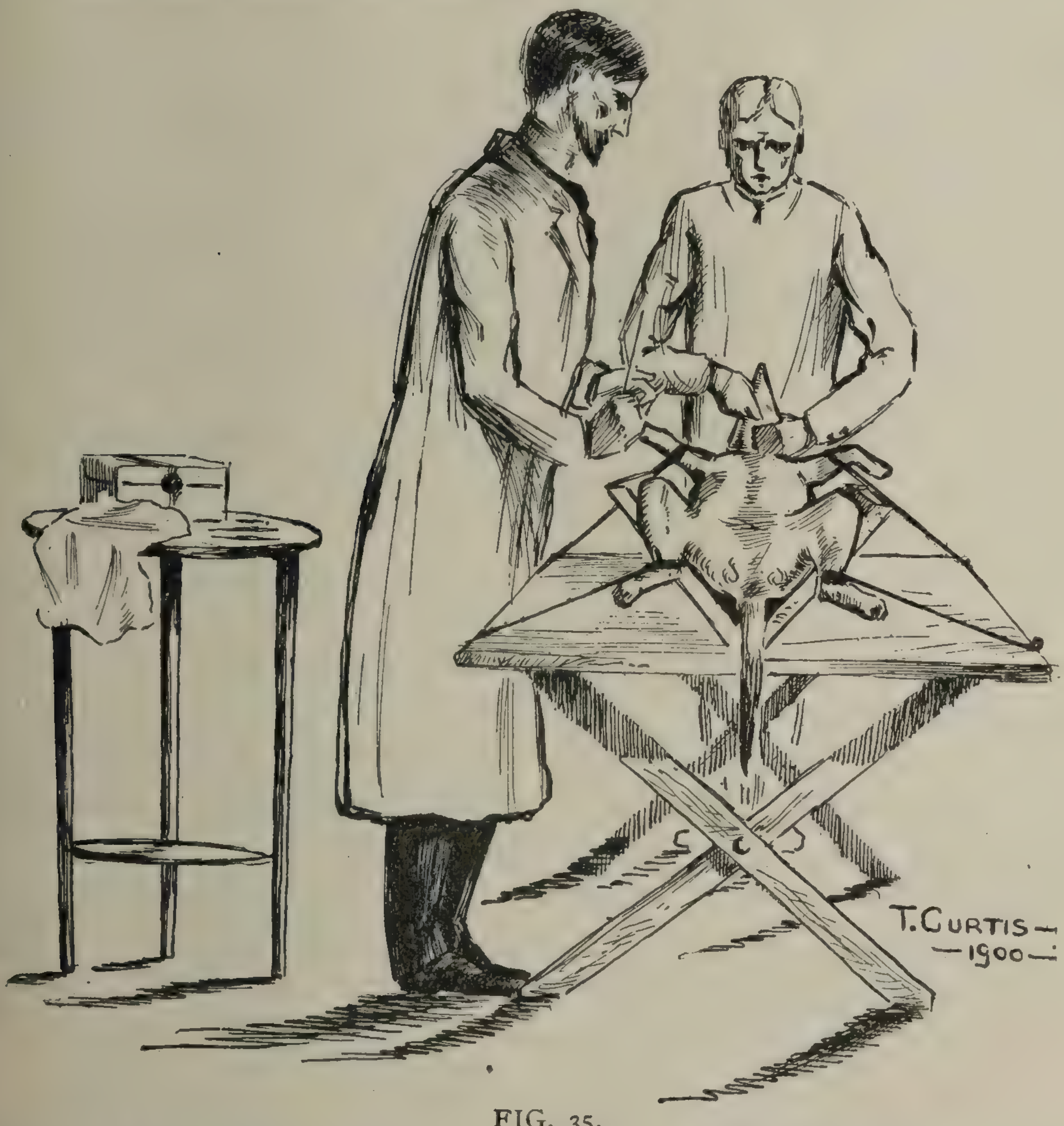

T. CURTIS—
—1900—

FIG. 35.
YOUNG'S METHOD OF SECURING DOGS FOR ADMINISTRATION OF ANÆSTHETIC AND ABDOMINAL OPERATIONS.

When everything is ready, the animal is placed upon the table with its head toward the low end of the chute, and confined as described, and anæthetized with ether. The abdomen should be washed off with a 1 to 1000 sol. of corrosive sublimate and dried with a little ether. An incision, about three inches in length, is made with a free hand, and not by nicks, in the median line below the navel, where the blood vessels are few in number, cut through the skin and fat down to the muscles. Sponge away the blood and stop all hæmorrhage before opening the abdominal cavity, by the use of catch-forceps. Next make a small opening through the muscle, and by introducing the blunt point of your scissors, make the opening of the desired size; again stop all hæmorrhage before opening the peritoneum. To open the peritoneum, it may be picked up by two forceps and nicked, or by a delicate tenaculum. Introduce a finger into the opening and with your scissors make the opening the desired size. Other things being equal, the short incision is safer, but the opening should be large enough for easy manipulation.

We now have a full view of the parts, and it is my practice to pick up the uterus and following it to the horns, place a sponge under it. (To one who has never performed the operation, and who cannot recognize the uterus, I would suggest that a probe be introduced into the vagina, which can easily be felt, and which will immediately put you on the right track.)

Follow up the uterus in a forward and outward direction until the ovaries are found. These will be recognized by their color, as already described, and their hard set feeling also serves to identify them.

These should be removed by the wire ecraseur or torn away with the thumb nail.

If necessary the cavity should then be cleaned up, and the wound closed by sewing the muscular coat with catgut sutures (interrupted). The skin should be sewed with silk and dressed with collodion and cotton. The roller bandage is then put on and the eight string bandage adjusted over it.

The wound should be dressed once daily, and the stitches removed on about the tenth day, during which period the patient should be fed on a milk diet.

SURGICAL ITEMS.

The dreaded sequelæ of tracheotomy which has for years been a bugbear to veterinarians, have been reduced to the minimum by the use of a new tracheotomy tube devised for this purpose by Dr. M. H. McKillip. The advantages of its use have been carefully observed; and besides preventing tracheal deformities, its use has verified that it is more easily applied than any other tracheotomy tube in general use. The tube is elliptical instead of circular. The transverse axis (*latus transversum*) of the lumen is 25 mm. in length, and its congugate axis, about 12 or 13 mm. The length and direction is the same as that of any ordinary curved tracheotomy tube. A tube with these dimensions can be inserted into the trachea without destroying or removing any cartiliginous tissue. The condition following tracheotomy is generally irreparable; the trachea will either collapse or dilate, which impairs the respiratory function and reduces the value and usefulness of the animal. Stenosis and collapse of the trachea are the most serious conditions following the operation, when the cartilages are incised or part of them excised. When the cartilages are incised and the tube inserted without excising part of them, the strain brought upon the lateral arcs (Fig. 36–Aa) of the cartilaginous rings caused by spreading them apart to form an aperture for the tube, encourages softening and absorption of the cartilaginous tissue forming these arcs; and as a consequence, the curvature is replaced by a straight cartilaginous wall or even a convexity (Fig. 36–B), which reduces the calibre of the trachea when the tube is removed and the cartilages are approximated. When the tube

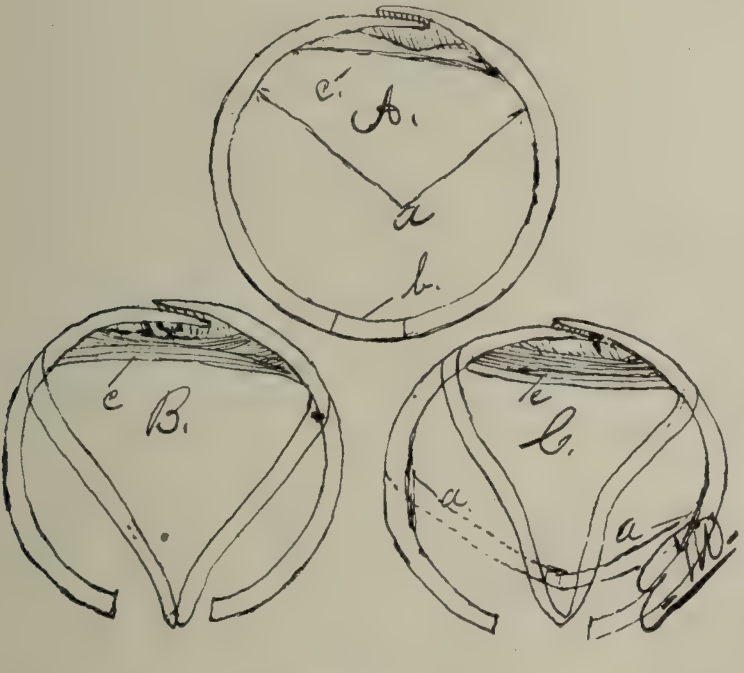


FIG. 36.

A, abnormal tracheal ring; *a*, lateral arcs; *b*, segment removed in tracheotomy; *c*, trachealis muscle. *B*, Collapse of tracheal ring; *C*, collapse of ring with convexity in lumen; *a*, collapse resulting from softening of arcs.

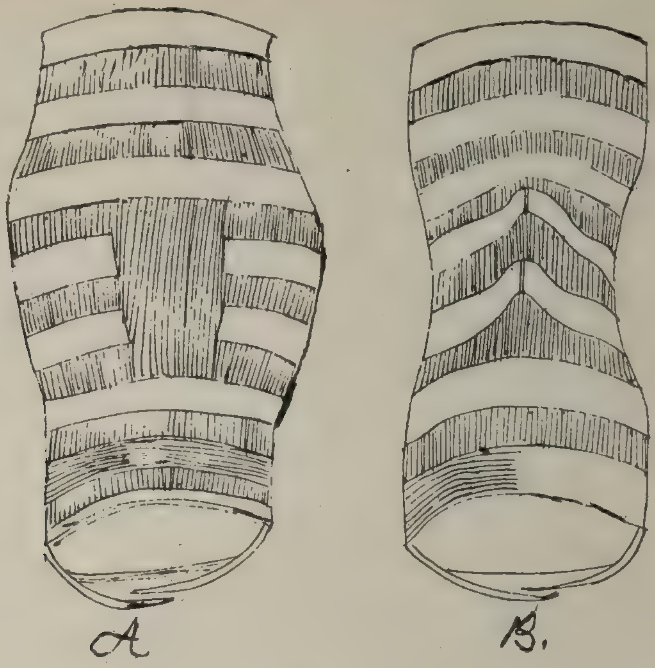


FIG. 37.
TRACHEAL DEFORMITIES, RESULTING FROM TRACHEOTOMY.

is removed the contraction of the trachealis muscle and the compression of the tissues surrounding the deformed cartilages, reduces the lumen by bringing them together, which forms a triangular opening instead of the normal circular one; this triangular opening is smaller than the lumen of the trachea, and, besides, in many instances, it is additionally reduced by a hypertrophy of the mucous membrane and submucosa. The conditions which excite stenosis (Fig. 37–B) of the trachea are caused by destroying the continuity of the rings; and, by spreading them apart, which reduces their curvature and excites an inflammation that encourages softening and absorption of the rings. Dilatation of the trachea (Fig. 37-A) is not so serious as stenosis and collapse, but is nevertheless considered a deformity. These conditions are all obviated by the use of the above mentioned tube, which is inserted between the rings instead of making an opening by destroying the continuity of the rings. The method of applying the tube is simple: the skin and subcutaneous tissue is incised longitudinally; a transverse incision is made through the connective tissue between the rings and the tube inserted into it. By this method of performing tracheotomy, the curvature of the tracheal rings is not changed; the continuity not destroyed; the rings are not deformed by softening or absorption; and, as a natural consequence, tracheal stenosis and dilatations are obviated.—(*E. M.*)

Some veterinarians are of the opinion that castration of other animals than the horse is below the standard of the veterinary profession and speak triflingly of one that castrates pigs, etc. This opinion is absolutely wrong. The human physician does not find it below his pride to extract a tooth occasionally, because some barber or blacksmith in his town pulls teeth also; nor does he refuse his services in obstetrical cases, because some midwife could have done just as well. It is impossible to see why the castration of pigs, cattle, etc., should lower the veterinarian's standard, if the operation is performed scientifically, even if some stockman or the so-called castrators do the same operation. There is no veterinary operation which could in any way lower or damage the veterinary profession. A veterinarian must be able to do anything that can be expected of him as a veterinarian; and, it is to be hoped that the time is not far when only graduate veterinarians will be allowed to practice castration. This would not only tend to drive out of business many a quack and incompetent castrator, but would also contribute to the elevation of the profession.—(*Dr. P. Bruecher*, *Berlin Vet. Weekly*, *Translated by J. W. Schumacher*.)

The easiest method of locating the cut end of blood vessels is by blowing the blood away from them. This can be done by directing a current of air into the wound either from a pressure bottle or by the use of a common blow pipe. From an aseptic point of view the former is preferable; yet, we have never been able to attribute wound infection solely to the latter. The careful surgeon always arrests capillary hæmorrhage by irrigation, which washes away all septic products that might be directed to the wound by the current of exhaled air. Many of the arteries and arterioles cut in veterinary surgery are difficult to locate on account of the constant oozing of blood which obscures them before they can be secured, after removing the sponge from the wound sufficiently not to obstruct the view of the operator; but, with a carefully directed current of air the blood can be cleared from the wound without obstructing the view. With a carefully and properly directed current, there will be but little splashing or splattering of blood; the blood vessels can easily be secured, and hæmorrhage arrested either by torsion or ligation.—(*E. M.*)

Nymphomania, Originating from an Abnormal Clitoris in a Cow. Reported by M. Chapelies, Veterinarian, of Houdan.—A cow, three and one-half years of age, became a nymphomaniac shortly after parturition. The owner's attention had been drawn to the enlargement of the clitoris, and the extreme sensitiveness of the animal, caused by the least touch of the vulva.

The cow had been served by a bull at least ten times without results. The clitoris was indurated, mammillated and contained three or four fibrous nodules; the mucous membrane was rosy, normal and the secretions abundant. With the aid of a pair of scissors and forceps, the clitoris was excised almost without hæmorrhage. Cicatrization was completed in a few days, and the animal became quiet. Two months later, the cow was "taken to the bull" and became pregnant.—(*Bulletin Veterinaire.*)—(*E. M.*)

A Case of Intestinal Obstruction from Neoplasia (*Reported by MM. Brisavoine and Lagneau.*) (*Recueil d'Alfort, Sept. 15, 1900*).—A young horse which had for a long time presented symptoms of digestive trouble that occurred principally after meals, was unfortunately treated with the object of maintaining and restoring the depleted system, which resulted from its ailment, by regulating the regimen (laxatives, alkalies, mucilages), and finally died. The autopsy revealed a rupture which was about 20 or 25 cm. in length, in the greater curvature of the stomach. About 40 cm. from the pylorus a tumor was found which surrounded the intestine like a muff; the diameter of the intestine was greatly reduced, and at the part involved it was almost strangulated. This condition was caused by a hyperplasia of the muscular coat. It is to this particular condition to which ought to have been attributed the cause of the trouble observed during life.—(*Translated from the Bulletin Veterinaire, Oct., 1900.*)—(*E. M.*)

Ablation of Distended Sesamoidean Sheath (*By M. Griffault, Veterinarian of 1st Hussars.*)—A mare presented a distended and partly indurated sheath on the external surface of the left anterior fetlock. Ablation was the course of treatment adopted, after the application of actual cautery; which had proven ineffective. The synovial hernia was excised as deeply as possible, under a spray of a 2-1000 sublimate solution; the skin was sutured with antiseptic silk No. 2; and, after washing the wound with salol 4 per cent., the region was dressed with iodoform gauze and absorbing cotton. At the end of nineteen days the wound was all closed but the last suture; the little wound was again disinfected, its lips brought together and a new dressing applied. In fifteen days after the application of the second dressing, cicatrization was complete. The mare was then exercised one half hour every day, which was gradually increased to one hour a day; baths and douches were given and massage applied to the parts, and after a month of this treatment no enlargement was perceptible and the animal never lamed again.—(*Translated from Le Bulletin Veterinaire, Oct. 15.*)—(*E. M.*)

Geresa, in a recent number of *La Clinica Veterinaria* (Italy) gives the following interesting report of twelve neurectomies: 1. Two operations for lameness resulting from nail pricks: (*a*) one was still working 39 months after the operation; (*b*) the other was still working satisfactorily after 31 months. 2. Three operations for side bones; (*a*) thirty-nine months after the operation one of them was still working without lameness; (*b*) one year after the operation one of them was sold for other causes; (*c*) three months after the operation the other was still working satisfactorily. 3. Two operations for chronic laminitis: (*a*) one was sold on account of septic inflammation, about fifteen days after the operation; (*b*) the other was sent to the abattoir for the same reason, two months after the operation. 4. Two operations for navicular disease: (*a*) acute case was sold about four months later, because the hoof began to loosen; (*b*) a sub-acute case lost its hoof about a year after the operation. 5. Three operations for chronic navicular disease: (*a*) one performed uninterrupted service for fifteen months, four months service at intervals, and was sent to the abattoir; (*b*) one of them was still working twenty months after the operation; (*c*) the remaining one performed uninterrupted work for seven months and was killed.—(*Trans.—E. M.*)

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By Adolph Eichhorn, D.V.S., New York City.

Cancer of the Rectum in a Horse [*By Prof. Olt*].—The Pathological Institute received the rectum of a five-year-old gelding, which was destroyed on account of an obstruction of the rectum caused by tumors, and found 26 cm. of the mucous membrane of the rectum covered by horned-plate epithelia. In this abnormal skin-like mucous membrane islands of normal rectal mucous membrane sharply defined were present, 15 cm. from the anus, and from which, 20 cm. anteriorly, the space contained belt-shaped nodular tumors, of a partly destroyed and ulcerated character. The rectal wall, 9 cm. thick on section, consisted of solid grayish nodules, inclosed in dense connective tissue, varying in size from a pea to a hen's egg.

The muscular coat, anteriorly to the part occupied by the new formations, was thickened to about four times the normal size, while the affected part was atrophied. The tumors proved the presence of a plate epithelial cancer. The interesting factor in this case is that instead of a cylindrical cancer, which is always the type of cancer of mucous membranes, he found the plate epithelia cancer.—(*Deutshe Thierärztl. Wochen.*)

PENETRATING ABDOMINAL WOUND WITH PROLAPSE OF THE GREAT MESENTERY AND THE SPLEEN [*By Gero*].—A five-year-old mare, which was in the ninth month of pregnancy, by accident received a perforating wound on the posterior part and the lower third of the chest, corresponding with the 6th, 7th, and 8th ribs, through which a large part of the mesentery and part of the spleen prolapsed. The mesentery was cut off right under the wound. After a careful disinfection with a 10 per cent. sublimate solution of the spleen, it was ligated with catgut in the constricted part produced by the sharp edges of the wound. The prolapsed portion was then removed and a compress bandage applied. The following day the temperature was 38.8° C., pulse 62, breathing somewhat difficult. On the fourth day the temperature was 40.6° C., pulse 88, the animal restless. After a morphine injection and the administration of digitalis these symptoms gradually subsided, and the animal completely recovered in seven weeks. Abortion in this case did not take place.—(*Veterinarius.*)

LONG INCUBATION OF RABIES [*By Kabo*].—A ten-year-old cow (of Hungarian breed) was bitten on the muzzle by a dog, which died later, showing all the characteristic symptoms of rabies. The cow did not show any symptoms whatsoever for 323 days, when marked symptoms of rabies developed and she died in six days. Rabbits were inoculated with an emulsion of the brain, and they died after eighteen days from typical rabies.—(*Veterinarius.*)

THE OPERATION ON CRYPTORCHIDS [*By Dr. Plose, Budapest*].—The author reports his experiences in regard to the operation upon cryptorchids, which were collected from numerous operations of this kind. His procedures are as follows: Two days previous to the operation 60–80 grammes of Glauber's salt is administered to the horse two or three times daily, the amount of food diminished, and twelve hours before the operation food is withheld entirely. The operation itself is performed in the side position, as in this way asepsis is much more easily secured. The field of operation is carefully cleansed and in the prepuce a cotton tampon is introduced to prevent the prolapse of the penis during the operation, whereby infection of the inguinal region is prevented. The anterior end of the prepuce is drawn forward by an assistant. The skin and the fascia under it, in the region of the external inguinal ring, is then cut about five to eight cm. in length, after which the hand is forwarded to the abdominal cavity, through the tendinous portion of the external oblique muscle of the abdomen. The opening of the abdominal cavity is then proceeded with by the author according to the "Danish" method, which consists in the separation of the external oblique muscle, followed by the puncturing of the internal oblique by two fingers, in the direction of its fibres, about three cm. from the posterior border. In most cases it is necessary to enter the abdominal cavity with the whole hand. With the hand in the abdominal cavity the author feels for the vas deferens, which, when found, is easily followed to the testicle. The testicle is then drawn through the opening of the wound, the cord ligated, and, after the separation of the testicle, placed back in the abdominal cavity. In cases where the whole hand is introduced into the abdominal cavity the author generally packs the wound with gauze, which is held in place by suturing the skin. The gauze is removed three or four days after the operation. By packing the wound the healing of the external parts is retarded, but by this method prolapse of the abdominal organs is prevented. Out of 57 cases of cryptorchids so operated upon only 7 per cent. proved fatal, while 93 per cent. were cured.—(*Veterinarius.*)

EXPERIMENTS IN INOCULATIONS AGAINST TEXAS FEVER [*By Lignière, Alfort*].—L. proved that the infectious disease of Argentina, which is known there as "Tristeza," is a form of Texas fever, which was first described by Smith and Kilborne. The cause of this infectious disease is a hæmatozoon (*pyroplasma bigeminum*). The disease is mostly transmitted by insects; the mortality is very great, and adult animals seldom, if ever, recover; one attack gives positive immunity. Lignière published an extensive work on the etiology of this disease, the biology of the parasite, and the cases observed by him, and it is of great interest, containing numerous drawings and photographs in relation to this malady. But as this work was published before the investigations were finished, it does not contain the most important part as to whether L. succeeded before his departure from Buenos Ayres to procure an inoculation which would immunize the cattle against "Tristeza." The experiments of L. proved, that the inoculated animals withstood, without any bad effects, the inoculation of a dose of virulent blood, which was taken from animals which suffered from a severe attack of this disease, most of which died from the disease. These experiments are of great importance, as it is the first time that it has been found possible to inoculate against a disease caused by a hæmatozoon. The experiments will be repeated during the following months in Alfort, and the Société Centrale de Medecin Veterinaire, appointed a commission, consisting of Messrs. Moussu, Mollereau, Nocard and Railliet, to report the results of the investigations. We are indeed especially anxious to hear these reports, as the disease is claimed to be the same as Texas fever, the dreadful malady which annually causes an immense financial loss in the United States. At the same time, the Bureau of Animal Industry, to which all the credit is to be given for these investigations as to the etiology of Texas fever, is now at work experimenting, to obtain an immunizing serum, and it should not at all surprise us to hear in the near future of their success in this direction.

CONTRIBUTION TO THE STUDY OF THE INTERNAL SECRETION OF THE TESTICLE [*By Pruneau*].—P. distinguishes in the testicle a secretion which is emptied to the outside, the semen, and one which is reabsorbed, having on the system a certain function. To study the influence of the internal secretion on the system, P. performed different experiments on rabbits, guinea pigs and dogs, in which (a) the vas deferens was cut out, ligated or severed, (b) the animals castrated, (c) control animals of the same race not operated upon. The animals which were treated in this manner were carefully observed, their daily increase in weight, the secretion of urine, with the other excrements, also the general metabolism, and found the following: (1) The testicles and the production of the semen is not influenced in any way by the ligation of the vas deferens. In dogs when ardent the testicle became enormously swollen, which, in the lapse of a few days, regained their normal size. On the prostrate no atrophy could be noticed. (2) In cases where the vas deferens was cut through a slight decrease of the urine excreted was noticed. (3) In old guinea pigs a marked atrophy of the vesiculæ seminalis was observed, in cases where the vas deferens was severed. (4) The daily amount of the excreted urea, and also the whole amount of nitrogen, is decreased after this operation. Therefore the metabolism is somewhat slower. (5) In young animals following this operation, an increase in the amount of blood was noticed, while in old ones a slight decrease. (6) An increase in the weight of the bony skeleton was noticed in all cases after the operation. (7) The operated animals were all stronger and livelier than the control animals. In cases where two male animals, one of which had the vas deferens ligated, were put in a cage with a female, the animal operated upon always copulated, driving the one not operated upon from the field.

ENGLISH REVIEW.

TOXICOLOGICAL EFFECTS OF IZAL ON THE DOG AND CAT [*By F. Hobday*].—Izal is a disinfectant and parasiticide which has gradually worked its way into veterinary and medical practice, and, although it is claimed as absolutely non-poisonous and non-irritant, Prof. F. Hobday records experiments in dogs and cats which have proved it to possess different properties, the use of the drug having proved fatal in two cases. From his experiments the Professor says: "I am convinced izal is poisonous to dogs and cats if used injudiciously. Its action is irritant and narcotic and its use in these animals, especially when applied to a large area of the skin, must be attended with discretion, as in some animals which seem to be well out of danger paralysis and death ultimately ensued.—(*Journ. of Comp. Path. and Therap.*)

ARSENIC ON A GROWTH OF THE FETLOCK [*By H. Gray, M. R. C. V. S.*].—A thoroughbred mare was brought five years ago to the author for a fingerlike growth on the off hind fetlock. This was excised and the base well burned with the actual cautery. It soon reappeared much larger than before. Various caustics (such as sulphonol, nitric acid, chromic acid, chloride of zinc, bichoride and biniodide of mercury, iodine with and without carbolic acid), were used alternately with the actual cautery, but notwithstanding these the growth kept on recurring and enlarging, until it had become of such size as to interfere with the work of the animal. The whole fetlock had enlarged and was continuously struck by the other foot. The author then resorted to the use of an ointment of arsenic made of one drachm of white arsenic and one ounce of ung. picis Burgundy—a small portion of which was carefully rubbed on the centre of the growth every third day. After a few applications the tumor began to decrease and after three months of treatment finally disappeared.—(*Journ. of Comp. Path. and Therap.*)

OVARO-HYSTERECTOMY OF THE PREGNANT UTERUS [*By C. J. Rix, M. R. C. V. S.*].—This case relates the operation of ovaro-hysterectomy performed on a terrier bitch weighing 2½ pounds which had been mated with a large dog and had been in labor for about twelve hours. The uterus contained two large pups, one quite large, which had been much injured by the efforts made to deliver it, the other was taken and dried, wrapped in cotton wool and put in a warm place. Three hours later it was given to a cat which had recently had kittens. The bitch recovered without any trouble. The puppy was thoroughly attended to by its foster mother until it could be weaned. —(*Journ. Comp. Path. and Therap.*)

A HIGH TEMPERATURE [*By Harold Leeney*].—Whether a case of deferred parturient apoplexy, or sunstroke, or a mixture of both, that the author had to deal with he does not decide. An aged cow which had calved nine days previous was down and unable to rise. Her neck was crooked, her eyes staring, but she appeared to be fully conscious. The pulse was almost imperceptible and respiration too rapid to be counted. She had been exposed to the sun, which had been beating on her with tropical severity. The thermometer was introduced into her rectum on two occasions and registered 110°F. at the extreme top of the tube. With heart stimulants, spinal sedatives, laxatives and frictions, the cow recovered in two days.—(*Vet. Journal.*)

INHERITED MALFORMATION [*By J. J. Lodwick*].—This relates to a Welsh mountain ram which had covered a number of Welsh ewes and when slaughtered by the butcher was found to have only one kidney. His progeny which were afterwards slaughtered proved to be affected in the same way—they had but one kidney each.—(*Vet. Journal.*)

PROLAPSUS RECTI [*By J. H. Parker, M. R. C. V. S.*].—A Shorthorn yearling bullwhenever approached or disturbed in any way would strain and evert the rectum for about one foot and then suddenly draw it back again. Sometimes he seemed to improve, but soon had a relapse, and as at that time the rectal mucous membrane became diseased and bled at each prolapse, the animal being still in good condition, was sent to the butcher and slaughtered. At the post-mortem the left vesiculæ seminalis was found diseased, and behind it, above the root of the penis, close to the neck of the bladder, there was a cyst as large as a duck's egg containing brownish colored fluid. The left vas deferens was inflamed and the vesiculæ seminalis of the same side was enlarged to about twice its normal size, containing a brownish colored fluid ; it was connected with the cyst. On the floor of the cyst there was an elliptical-shaped orifice which the author thought was the left ejaculatory duct obliterated. All these conditions connected with the lower surface of the rectum suggest the idea that they were the cause of the straining and of the prolapsus.—(*Veterin. Record.*)

LAPAROTOMY AS AN AID TO DIAGNOSIS [*By F. Hobday, F. R. C. V. S.*].—Referring to an article on the same subject from the *Berliner Thierärzt. Woch.*, the author enumerates a number of cases where he resorted to the operation purely for diagnostic purposes or during the course of some operation or other : In horses and mares, 26 cases, including laparotomy for obstruction of the intestines, abdominal cryptorchidy, ovariotomy, radical operation for umbilical and abdominal hernia ; cattle, 25 cases, for ovariotomy ; dogs and cats, more than 200 cases, including oöphorectomy, ovariotomy, ovaro-hysterectomy, Cæsarian section, radical operation for hernia, enterotomy, gastrotomy, supra-pubic lithotomy, etc. ; monkeys, one case of oöphorectomy ; pigs, a number of cases of oöphorectomy.—(*Veterin. Record.*)

CORRESPONDENCE.

THE FIRE AT THE NEW YORK STATE VETERINARY COLLEGE.

ITHACA, NOV. 19, 1900.

Editors American Veterinary Review :

DEAR SIRS :—You have doubtless seen the report of our fire at this College, and I think it well that your readers should get an authoritative statement of the occurrence. Early in the morning of Nov. 13th the main (central) divisions of the laboratories of bacteriology and pathology, and histology and embryology were burnt out with all their valuable contents. Fortunately the research laboratories in the same subjects escaped, together with their contents. The basement, containing the heating plant, store rooms and special work rooms, escaped, also the first floor with the museum and offices, and the second floor, with the Flower library, periodical and reading room, part of the museum, the laboratories of physiology, materia medica and pharmacy, lecture room and offices. The east wing, 90 feet long, with amphitheatre, dissecting room, store room, preparation room, locker room, lavatories and the house for experimental animals remain unscathed, as do all the detached buildings—groom's cottage, mortuary, bone room, operating room, and three clinical buildings.

Work was begun at once on the burnt out portion, and by Saturday night the débris had been cleared out, a roof put on, and the windows closed up, and this morning college work started as usual in all departments. The alcoves of the museum on the first floor are devoted to periodicals and reading, and to laboratory work in histology, on the second floor bacteriology takes the old periodical room, and part of the museum for a laboratory. The research laboratories which came so near going up in smoke can also be used.

The short course for practitioners, advertised to open January 3d, will be conducted as advertised and with ample facilities.

Yours very truly,

JAMES LAW.

PROMOTIONS OF VETERINARIANS IN THE BUREAU OF ANIMAL INDUSTRY FROM SEPTEMBER 1 TO NOVEMBER 30, 1900.

Dr. A. M. Adams, Clarinda, Iowa, from $1200 to $1400.

Dr. F. W. Ainsworth, Pittsburg, Pa., from $1200 to $1400, and placed in charge of station.

Dr. Boyd Baldwin, Chicago, from $1200 to $1400.

Dr. A. E. Behnke, Inspector in charge at Milwaukee, from $1400 to $1600.

Dr. Tait Butler, from $1200 to $1400, transferred from Chicago and placed in charge at Cudahy, Wis.

Dr. Thomas Castor, East Las Vegas, N. Mex., from $1200 to $1400.

Dr. H. A. Christmann, Washington, D. C., from $1200 to $1400.

Dr. W. Ross Cooper, Kansas City, from $1200 to $1400.

Dr. A. A. Holcombe, Chicago, promoted to travelling inspector, from $1200 to $1400.

Dr. Robert L. Kelly, East St. Louis, Ill., from $1200 to $1400.

Dr. Peter I. Kershner, Manhattan, Kansas, from $1200 to $1400.

Dr. John A. Kiernan, Boston, from $1200 to $1400.

Dr. F. B. McCall, Chicago, from $1200 to $1400.

Dr. John P. O'Leary, Buffalo, from $1200 to $1400.

Dr. Harry D. Paxson, Fort Worth, Texas, from $1200 to $1400.

Dr. George W. Pope, Supt. of Animal Quarantine Station at Garfield, N. J., from $1400 to $1600.

Dr. Frank S. Tufts, Chicago, from $1200 to $1400.

Dr. Harry N. Waller, formerly inspector in charge at Pittsburg, transferred to same position at New York and promoted from $1600 to $1800.

Dr. T. A. Geddes, stationed in England as inspector of live stock for importation.

Dr. R. W. Hickman, formerly inspector in charge at New York, transferred to Washington and placed in charge of the Miscellaneous Division of the Bureau.

SOCIETY MEETINGS.

MISSOURI VALLEY VETERINARY ASSOCIATION.

The twenty-fifth regular meeting was held in Kansas City October 29, 1900, with the following veterinarians present: Drs. W. R. Andress, R. Blanch, S. E. Bennett, F. F. Brown, R. H. Carswell, W. J. Fretz, John Forbes, B. F. Kaupp, R. C. Moore, N. B. Smith, S. Stewart, D. C. Hannawalt, Jas. Wilson, J. B. Wright, E. Lee, and about fifty veterinary students.

From 2 to 5 P. M. a very instructive surgical clinic was held in the operating rooms of the Kansas City Veterinary College, which included a variety of recent operations.

At 7.30 P. M. the meeting was called to order by the President, Dr. John Forbes, of St. Joseph. After roll-call and reading of minutes of previous meeting, Dr. S. Stewart, of Kansas City, chairman of the Legislative Committee, gave a good account of the work being done by that committee and by the committee of the Missouri Veterinary Medical Association towards securing legislation to regulate the practice of veterinary medicine in the State of Missouri. The report was accepted and he committee continued.

The following programme was presented:

Dr. S. E. Bennett, "Age of the Horse as Revealed by the Teeth."

Dr. S. Stewart, "Report of the 37th Annual Meeting of the American Veterinary Medical Association."

Dr. B. F. Kaupp, "A Report of the 9th Annual Meeting of he Missouri Veterinary Medical Association."

Drs. E. J. Netherton and C. E. Steele, "Reports of Cases." A generous and spirited discussion was elicited by the papers.

The next meeting will be held in St. Joseph in December, 1900. B. F. Kaupp, D.V.S., *Sec., Pro-tem.*

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

At the last meeting of this society the following resolution was passed: "That the President be empowered to appoint Resident Secretaries, one in each county of the State to act in conjunction with the Legislative Committee." In obedience to this resolution President Bell announces the following appointments: *Albany*—W. H. Kelly, Albany; *Broome*—C. D. Morris, Binghamton; *Cayuga*—W. J. Hallock, Auburn; *Cattaraugus*—L. L. Bishop, Delevan; *Chautauqua*—Charles H. Jewell, Dunkirk; *Chemung*—Charles B. Potter, Elmira; *Chenango*—E. M. Casey, Oxford; *Clinton*—J. A. McCrank, Plattsburg; *Columbia*—H. B. Ambler, Chatham; *Cortland*—J. C. Stevens, Cortland; *Delaware*—W. H. Phyfe, Delhi; *Erie*—W. L. Baker, Buffalo; *Franklin*—H. D. Mayne, Malone; *Fulton*—W. W. Kennedy, Fulton; *Genesee*—Harry Sutterby, Batavia; *Herkimer*—E. B. Ingalls, Mohawk; *Jefferson*—John A. Bell, Watertown; *Kings*—E. B. Ackerman, Brooklyn; *Lewis*—F. D. Markham, Port Leyden; *Madison*—E. F. Bettinger, Chittenango; *Monroe*—O. B. French, Honeoy Falls; *Montgomery*—J. M. Darby, Fort Plain; *New York*—Robert W. Ellis, New York; *Niagara*—A. Crowforth, Lockport; *Oneida*—Wilson Huff, Rome; *Onondaga*—J. M. Henderson, Syracuse; *Ontario*—W. H. Salisbury, Clifton Springs; *Orange*—H. E. Clarke, Newburgh; *Orleans*—G. C. Kesler, Holly; *Oswego*—W. B. Switzer, Oswego; *Otsego*—V. L. James, Cooperstown; *Rensselaer*—H. McWhinnie, Troy; *Richmond*—James McKee, Stapleton; *Schenectady*—A. G. Wicks, Schenectady; *Schoharie*—W. J. Wadsworth, Cobbleskill; *Seneca*—J. M. Chase, Seneca Falls; *St. Lawrence*—Chas. Cowie, Ogdensburgh; *Steuben*—J. L. Ronan, Corning; *Suffolk*—R. C. Jones, Port Jefferson; *Tioga*—E. F. Vorhis, Owego; *Tompkins*—James Law, Ithaca; *Ulster*—T. F. O'Dea, Saugerties; *Warren*—D. S. Saylor, Glens Falls; *Wayne*—E. H. Nodyne, Sodus; *Westchester*—E. Latourell, Yonkers; *Wyoming*—Romanzo Perkins, Warsaw.

The following standing committees have been appointed for the ensuing year: *Committee of Arrangements*—W. L. Williams (chairman), James Law, C. D. Morris, Pierre A. Fish, and Carl W. Gay. *Legislation*—W. H. Kelly (chairman), James Law, W. L. Baker, C. D. Morris, and Roscoe R. Bell. *By-Laws*—E. B. Ackerman (chairman), J. W. Corrigan, and C. D. Morris. *Executive*—Roscoe R. Bell (chairman), George H. Berns, C. D. Morris, W. L. Williams, W. H. Kelly, and E. B. Ackerman.

SOUTH DAKOTA STATE VETERINARY MEDICAL ASSOCIATION.

In response to a call issued by certain members of the profession, the veterinarians of South Dakota met at eight o'clock P. M., Oct. 9th, 1900, at the Depot Hotel, Huron, S. D., for the purpose of organizing a State Veterinary Medical Association.

The meeting was all that could have been desired, both in point of attendance and interest shown by those present in the movement. Dr. J. W. Elliott was elected temporary Chairman, Dr. H. O. Sanford temporary Secretary, and Drs. Moore, Hicks, and Foster were appointed a committee to draw up by-laws to be approved by the members of the association.

The by-laws having been presented and approved, election of officers took place with the following results:

President—J. W. Elliott, V. S., Aberdeen.
Vice-President—D. A. Cormack, D. V. S., Watertown.
Treasurer—H. O. Sanford, M.D.C., Beresford.
Secretary—J. P. Foster, V. S., Selby.

Drs. Cormack, Hicks, and Moore were selected as a committee to frame suitable bills to be presented at the next session of the Legislature.

After discussing other matters of interest, the meeting adjourned to meet again in January, exact date and place to be decided upon by the President. J. P. FOSTER, *Secretary*.

NEWS AND ITEMS.

IF animals ever regret their actions, what does the kangaroo?

DR. J. F. DEVINE, of Rhinebeck, N. Y., has removed to Brooklyn, and has become an assistant in the practice of Dr. Roscoe R. Bell.

Is Dr. M. H. Reynolds, of Minnesota, preparing a history of veterinary science in America? He is collecting data for some good purpose. Why not adopt the suggestion?

THE veterinarians of South Dakota have organized an association and will endeavor to secure a practice act at the next session of the legislature.

DR. H. D. FENIMORE, of Knoxville, Tenn., has retired from the practice of veterinary medicine, and writes the REVIEW that there is an opening there for a practical veterinarian.

DR. S. S. SNYDER, of Cedarburg, Wis., has been appointed Resident State Secretary of the A. V. M. A. in place of Dr. G. Ed. Leech, of Milwaukee.

AT the sale of Hereford cattle at Kansas City, Oct. 23, the yearling bull Columbus XVII—adjudged the best bull in the sale—was sold at auction to Frank Rockefeller for $5050.

THE VETERINARY SERVICE ASSOCIATION seems to have subsided into "innocuous desuetude," as its efforts to corner practice in Greater New York have proven a failure. We have heard of no practitioner complaining of lost clients. Next.

DRS. WILLIAM SHEPPARD, Thomas G. Sherwood, and John M. Heard, all graduates of the Royal College of Veterinary Surgeons of England, were the official veterinarians of the last National Horse Show at Madison Square Garden.

THE recent automobile show held in New York attracted much attention and many new models of the lifeless machine were exhibited. As a consequence the National Horse Show was a greater success than ever.

DR. R. W. HICKMAN, B.A.I., for a number of years in charge of inspection at New York, has been ordered to Washington to assume charge of the Miscellaneous Division of the Bureau. In consequence the profession of Gotham loses a genial member, and New York University a valuable instructor.

THE library of the A. V. M. A., in custody of Librarian Williams, of the New York State Veterinary College, was domiciled in the building which was partially destroyed by fire on the 13th ult., but Dr. W. informs us that it came out unscathed, as did his private library.

THE Westchester County (N. Y.) Association has begun its crusade against illegal practitioners in its district, and all but one suspect are now in process of prosecution. An example worthy of emulation in every section of this and other States having adequate laws.

THE last meeting of the New York State Society having proven such a phenomenal success from every point of view, the President of that organization has reappointed the head of the Arrangements Committee of last year with most of the members in anticipation that their past experience will enable them to even eclipse their great work of 1900.

Dr. H. G. Patterson, of St. Joseph, Mo., has returned to take up his practice in that city after five months' service with the British government in the transportation of animals to South Africa. The doctor reports successful and pleasant voyages, and a jolly good time.

Dr. H. E. Rice, of Little Rock, Ark.; Dr. D. G. Moberly, of Kansas City, Mo.; Dr. Ed. Makins, of Abilene, Kans.; Dr. H. C. Simpson, of Dennison, Iowa, and Dr. C. E. Monney, of Hiawatha, Kans., have journeyed to South Africa in the service of the British government.

"A College Without a Faculty."—A Nashville correspondent informs us that the editorial in the November number bearing the above title was absolutely true, and that we can now add to it that it is also a college without students, as but two young men have conceived the idea that they can obtain instruction without the aid of instructors.

Dr. T. A. Geddes, Chief of the Miscellaneous Division of the Bureau of Animal Industry, has been detailed as a special inspector and ordered to Great Britain to inspect cattle intended for importation into the United States. This foreign inspection will enable importers to purchase stock subject to such inspection, and will not require the tuberculin test upon arriving at quarantine in the United States.

Rabies in Horses.—Dr. S. Stewart, Dean of the Kansas City Veterinary College, writes to the Review, under date of November 21, as follows: Within the last 20 days two cases of rabies in horses have been brought to the college hospital. Careful inquiry reveals that these horses were exposed to an attack of a dog which presented the classic symptoms of rabies prior to its destruction.

The New York and Chicago horse shows were the scenes of the most enthusiastic rivalry between the contestants and of keen appreciation by the immense audiences. The visitors witnessed the finest equine specimens of the world and the enthusiasm ran high. To look over the beautiful arena, animated by the flower of the American stud, was a privilege as great as the occasion was inspiring to the lover of the horse.

"The Breeder's Gazette" has recently been indulging in some rather harsh criticism of the veterinarian, excited by the tuberculosis laws of Illinois which were passed at the last session of the legislature at the instigation of the profession of that State, in which the poll-axe figures somewhat prominently. Dr. Samuel G. Hendren, of Marion County, Indiana, had a letter in the issue of the *Gazette* for Nov. 14 in protest of that journal's strictures. In some foot-notes the *Gazette* disavows any such purpose, and remarks that it has always appreciated the value and high character of the profession of the country, and has ever exerted itself to advance its interests.

OUTBREAK OF TEXAS FEVER IN OHIO.—Dr. J. C. Burneson, State Veterinarian of Ohio, writes the REVIEW as follows : "An outbreak of Texas fever was discovered in Lake County, Ohio, The disease was carried to that locality by Texas cattle, purchased in the West by a butcher. Several cattle escaped from his pens, roaming about the neighboring farms. The greatest loser to date is Mr. S. M. Whiting, he having lost three valuable Holstein cows before my arrival, and one which would soon die was killed for the purpose of antopsy. Six others were in very bad condition, among them a valuable registered Holstein bull. The latest devised means of suppression were immediately instituted and we are now awaiting results."

THE "HIGH-STEPPING DOPE."—The late New York horse show threatened to unearth a scandal by investigating an exhibitor's methods of producing knee action in his horses. The suspicion grew out of the peculiar conduct of his entries in the ring and was further strengthened by a strong odor of ammonia emanating from the stalls occupied by these horses. The official veterinarians were sent upon an investigating tour, and they reported that the explanation furnished by the stable was to the effect that the ammonia was contained in a leg wash applied for soothing and antiphlogistic purposes, and was only one of a number of ingredients, of which witch hazel, alcohol and arnica were the others, and that the ammonia was in such small proportion as to be devoid of irritating effects. The veterinarians were disposed to accept this statement as correct, but thought the odor of ammonia was stronger than was justified by the small quantity claimed. The gentleman owner thinks the association owes him an apology for the reflection. The directors have clearly the right to investigate anything which may seem to them suspicious, and it is their duty to do so. The fact that the suspicion was not confirmed is equivalent to an exoneration. Veterinarians do not believe that it is a practice among a certain class of horsemen to rub the legs of their horses with irritants to cause them to lift their feet high, showing knee action and animation. It is impossible that an irritant could be applied which would have such effect while the horse was in action, and fail to affect him while standing at rest for inspection by the judges.

SOUTHERN VETERINARIANS HONORED.—At the annual convention of the American Veterinary Medical Association, held at Detroit, Mich., during the first week of September, Dr. Tait Butler, late Professor of Veterinary Science in the Mississippi A. & M. College, and veterinarian to the agricultural experiment station of our neigboring State, was elected president of that national association for the ensuing year, and Dr. W. H. Dalrymple, M. R. C. V. S., of our own State University and experiment station, had the honor of second vice-president conferred upon him, which means that he represents the South in this important national veterinary society. This is the first time that the Southern States have received representation in this association, and Dr. Dalrymple the first member to be elected vice-president to represent them. Dr. Dalrymple has always been an enthusiastic devotee to the cause of veterinary science, and his able efforts in this direction are worthy of the honor bestowed on him. The treatment of our domestic and farm animals is developing day by day, and the people of the South are beginning to realize that the science which serves to prolong life and relieve suffering in the brute creation, on which we are so dependent, is scarcely of less importance than that which treats the ills of man. The exalted rank attained by representatives from southern institutions in these inter-state conventions of veterinarians is the most patent and manifest example of the high standard of efficiency which this science has gained in the South's great State colleges and other institutions of learning.—(*Truth*, *Baton Rouge*, *La.*)

VETERINARY MEDICAL REGISTER OF THE STATE OF NEW JERSEY.—Under authority of the Veterinary Medical Association of New Jersey, Dr. Wm. Herbert Lowe, of Paterson, has issued a little pamphlet bearing this title, which presents a copy of the Certificate of Incorporation of the Society, the law governing the practice of veterinary medicine in that State, and a complete list of every practitioner registered in the Clerk's office of every county of New Jersey. The compilation of this list has been a large contract, as the author has endeavored to follow up the history of every man who placed his name upon the registry books. The information furnished includes the name of the practitioner; address when registered; the college from which his diploma was obtained, if possessed; the date of such diploma; date of registry; and remarks (which includes deaths, removals, and other data). In running through the "Register," we find the names of 402 practitioners, of whom 282 are graduates and 120 are "existing practitioners;" 96 hold diplomas of the American Veterinary College, 54 of the New York College of Veterinary Surgeons, 36 of the University of Pennsylvania, 28 of the Ontario Veterinary College, 12 of Columbia College (defunct), while 56 hail from various foreign and domestic institutions. Of this formidable array of veterinarians, many are registered in more than one county, a great many have removed to other States, 28 are deceased, and some are devoting their energies to other vocations. The general distribution of the "Register" among the profession of the State will probably result in the correction of many unavoidable errors, and a second edition will be more complete. This little pamphlet is of much more importance than appears at a casual glance, as it will at once enable the members of the profession to determine just who has the legal right to practice, and it will greatly assist those having the prosecution of offenders in charge. Cape May County reports that not a single veterinary surgeon is registered in that county.

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AMERICAN VETERINARY REVIEW.

JANUARY, 1901.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

THE VETERINARY ARMY CORPS.

If the veterinary profession had not suffered so many unexpected disappointments when success was all but assured, the REVIEW would feel like throwing its hat high in the air and calling for three lusty cheers for the Veterinary Corps of the United States Army, so nearly an accomplished fact does it now appear. It passed the House of Representatives on December 5 by a vote of ayes 80, noes 72, and now goes back to the Senate for concurrence. That body having already given its sanction to the veterinary section of the army bill, it would be a travesty upon consistency should it now reverse itself, and fail to agree to the House amendment. But the alert Committee of the A. V. M. A. is taking no chances, and has thrown its entire battery against those who are to do the voting. So thorough has been its work that the junior Senator from New York addressed himself to the Resident State Secretary with an avowal that the veterinary surgeons of New York State have deluged him with so many appeals that he cannot reply to them individually, but pledges his earnest consideration of the bill which called forth such a united effort. While we have no knowledge to that effect, we presume the profession in other States has been equally active, and if the supposition is correct the cause will be utterly irresistible when it is reached in the Senate, which will probably be during the first half of January. The last ditch will have been virtually crossed when the Senate shall have stamped its approval upon this amendment, for the President has expressed his sentiments in favor of it, and there will be no difficulty in securing the executive sanction.

We, therefore, congratulate the profession upon the gallant and deserved victory which seems imminent, the country upon the wisdom of its action from an economic standpoint, as well as upon its tardy recognition of a profession which is deserving of the positions of rank thus conferred, and the Army upon its acquisition of ranking officers the peers of any in point of intelligence and gentlemanly demeanor.

Elsewhere will be found a *verbatim* report of the discussion of the amendment in the House, and while all will be forgiven in the general rejoicing, there are some who have earned and will receive the unstinted applause and support of the veterinary profession of America.

PROTECT THE LAWS WE HAVE.

Veterinarians in all States whose legislatures have adopted laws prohibiting all but registered men from practicing the art of veterinary medicine ,and surgery should not rest under the feeling of security that, having obtained the coveted statute, they are forever free from all semblance to the conditions which existed prior to the enactment of the protective laws. There is nothing to prevent repeated attempts to reopen the registry books to those in whose faces they were shut; and such efforts are, as a matter of fact, being made at every session of the legislatures, under many different forms and disguises, both as general and special legislation. We believe, however, that no State in the Union has ever, even remotely, approached New York in the frequency or persistency with which the integrity of a sovereign law has been sought to be nullified. There has never passed a year during which there was not one or more bills introduced to permit Tom, Dick and Harry to become legally registered practitioners of veterinary medicine, although such men were expressly prohibited by the existing law from performing such a function. We do not believe that the medical practitioners, our dental cousins, nor our friends of the legal fraternity, are called upon to bestow such incessant watchfulness over the laws which were made to bar charlatanism from their ranks; our science must either be a magnet or else it is regarded as an easy mark by those who wish to break through the fences of its legal enclosure. It would also seem that repeated failures to effect an entrance into the forbidden pasture have no influence in dampening the ardor or the hopes of those whose professional education is less than that which is prescribed by the New York law; they come and they come again. But every year the profession is better prepared to resist the attacks. The State Society feels that the responsibility to maintain the laws intact rests upon it, and it has placed itself in position to fight every measure that in any degree challenges the integrity of our statutes. Its Legislative Committee is in touch with the daily proceedings of the Senate and the Assembly, and upon the first approach of danger an alarm is sent forth to an organized force of earnest men in every county of the State which has a representative veterinarian within its borders, and the entire machinery of the State organization is at once thrown into action. There will not be a Senator nor an Assemblyman who will not be appealed to by a veterinary constituent to destroy the bill which menaces our laws. So that if all do their duty there is no chance whatever of a pernicious bill reaching a favorable report from the committee to which it has been referred.

These remarks are prompted at this time, not only to inform the profession of other States what appears to be the best means of coping with this important matter, as learned from continuous experience, but to warn the profession of the Empire State that, notwithstanding its apparent security through organized resistance and its capacity to repel such extraneous propositions, word reaches us that the greatest fight in the history of the Society must be made at the present session of the legislature. Last year the clamorings of the malcontents were appeased by an act which the Society permitted to become a law, since its consummation involved the unanimous approval of the Board of Veterinary Medical Examiners before a candidate could become licensed; and in every instance that approval has not been passed to those whose qualifications were lacking. Numerous applications have been made, and their failure has been followed by threats of legal prosecution of the Board; and it has been openly declared that this year the bars will be lowered for the admission of every graduate of veterinary medicine, whatever the character of his alma mater may be. To be forewarned should mean to be forearmed, so that when their measure makes its appearance it will be struck such a staggering blow that its sponsors will know from the beginning that their unworthy cause is lost.

To illustrate the effect of perfect organization, witness the following letter of Senator Depew in the matter of the Veterinary Corps in the Army. The Resident State Secretary of the American Veterinary Medical Association, Dr. Kelly of Albany, who is also the chairman of the Legislative Committee of the State Society, sent out a circular letter to the profession asking the members to use their influence with Senators Platt and Depew to pass the Army Bill. Dr. Kelly furnishes us with Dr. Depew's letter to him, which speaks volumes:

UNITED STATES SENATE, WASHINGTON, D. C., Dec. 19, 1900.

Wm. Henry Kelly, V. S., Resident State Secretary, American Veterinary Medical Assc., 195 Western Ave., Albany, N. Y.

DEAR SIR:—I am receiving such a multitude of letters from veterinary surgeons throughout New York State that it is impossible for me to answer them individually, so I take this method of informing them through you that the matter of the Veterinary Corps in the Army will receive my earnest consideration. Yours very truly,

(Signed) CHAUNCEY M. DEPEW.

THE DEALER'S SIDE.

It is simple justice to give both sides to a story, and therefore we gladly give space to the following from the New York *Herald* of recent date:

FEW SOUND HORSES SOLD AT AUCTION ARE WARRANTED SOUND OWING TO STRICT INTERPRETATION OF THE TERM BY MANY VETERINARIANS.—Amateur horsemen who attend the big auction sales in New York often express surprise that so few animals are warranted sound, and a great many intending bidders are doubtless stopped by the omission of such a warranty in the sale catalogue or in the sign on the auctioneer's box, which announces the representations under which each horse is sold. It has been said that not one in twenty of all the horses sold under the hammer in the metropolitan market is warranted sound. Nearly every firm in the commission business advises its consignors not to give such a warranty, regardless of whether the horse sold is believed to be sound or not.

The term "sound," as interpreted by many veterinarians, means too much, according to the dealers, so much, indeed, that not one horse among a hundred could be certain of passing inspection. Any insignificant blemish or defect that a practical horseman would see and disregard is frequently enough to "turn down" a valuable animal, and when once a horse has been officially rejected as "unsound" his market price is cut in two. The word condemns him without much regard to whether his shortcoming is a harmless splint or scar, or a spavin or something equally serious.

A case in point:—At one of the oldest and best known auction marts in New York not long ago a fast and handsome road horse was put up for sale under a full warranty as to soundness and was sold for $575. When inspected by the veterinarian he was rejected as "unsound," and was accordingly returned to be resold for the account of the original consignor. That the horse was practically sound was not denied, but he failed, nevertheless, to fill the bill as an absolutely sound horse. At the second sale he brought a little less than one-half the original price, a Brooklyn horseman getting him this time for $250. After having used him daily for nearly a month the present owner of the horse now says he would have been cheap at $700. Since the second sale took place a competent veterinarian has pronounced the horse to be absolutely sound.

At another sale a consignor, who was not familiar with the full import of a warranty of soundness, sold a pair of horses under such a representation. They failed to pass after bringing $1200, and were put up again and sold for $600. The second buyer, who saw for himself that nothing of consequence ailed either horse, was able to resell the pair at private sale for $1000 within twenty-four hours.

While we are of opinion that a great injustice is done the dealer when a horse is condemned on account of an "insignificant blemish or defect" that will not interfere with the usefulness or value of an animal for the purposes for which he is purchased, yet we would emphasize the importance and professional duty of the practitioner in discriminating between this class and other so-called "insignificant blemishes and defects" that do impair, or are likely to impair, the usefulness and market value of an animal.

It is right at this point where the competent practitioner's opinion is of greatest value to the purchaser. It is for the practitioner to determine what is harmful and what is unharmful.

Any horseman can recognize a well developed spavin or ringbone, but it often taxes the judgment of the most experienced practitioner to recognize incipient pathological processes that render a horse unsound. W. H. L.

ORIGINAL ARTICLES.

PROPHYLAXY OF INFECTIOUS DISEASES OF DOMESTIC ANIMALS.

By Prof. Ed. Nocard,* France.

(*Concluded from page 660.*)

(2) PROPHYLAXY WITH INOCULATION OF PURE OR WEAKENED VIRUSES.

We have arrived at the second group of means to realize prophylaxy.

Many infectious diseases do not return a second time; once removed from a first attack it is very likely that it will not return a second time. One has become refractory to that disease. It is the well known case of small-pox. It is the type among diseases that do not return; it is so also in cases of pleuro-pneumonia, of variola in sheep, rinderpest, anthracoid diseases, rouget of swine, cholera of fowls, rabies, Texas fever, horse sickness, etc. It is very rare in many of these diseases to observe a return of the disease, because most of the affected animals die. Rabies is always fatal; recovery from rinderpest, anthrax, chicken cholera, rouget, horse sickness, is rare and very exceptional. But those who have the good fortune to recover are then protected from a new attack; they sustain without trouble the inoculation of a virus which kills all fresh animals.

These facts, known from time immemorial, have suggested the idea of producing diseases artificially, to avoid the fatal affection. This course presents several advantages: the disease produced by inoculation is often much less serious than the natural disease; it lasts but a short time, can be given at the same time to all the animals exposed to contagion and which would become sick, little by little, one after the other, thus keeping up the disease in the invaded barn; by this method the duration of sanitary measures, always vexatious, troublesome and expensive, is reduced.

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* Extract from *L'Ingenieur Agricole de Gembloux.* Translated by A. Liautard.

In the last century it was a common practice, especially in England, to inoculate small-pox to young folks. They had so many opportunities of contracting the disease that they consented to run the risk of the inoculation. A certain number would die, but much less than in a time of epidemic.

This practice lasted until the days of Jenner, when he discovered vaccination and gave its inestimable practice to humanity.

Direct variolization, however, still exists in some countries. In Algiers, for instance, the French have not yet succeeded in substituting vaccination for it. The Arabs remain attached to the traditions of their ancestors. With the fatalism of their belief they prefer to run the danger of the frequent accidents of variolization rather than adopt the practice of the Christians.

Small-pox in sheep is a disease similar to human small-pox; it resembles it so much that some authors call it improperly "swine variola." It has for a long time been known that sheep recover from it, and will not again take it, and that by inoculation of its virus healthy animals can be protected.

Clavelization is analogous to variolization; like it, it gives the disease, but under a less serious form than natural contagion.

Inoculation of the virus is done at the extremity of the ears or of. the tail; the disease develops in all the animals at the same time, and after five weeks, at the most, general health has returned.

Clavelization has the objection of creating centres of contagion and of causing in some sensitive breeds a mortality which may go up from 2 to 10 per cent. It is for that reason that preventive clavelization is not allowed in France ; on the contrary, it is prescribed for all flocks when the disease has made its appearance, because the severity of the disease and the duration of the sanitary measures imposed by law are reduced.

But there are countries where variola is very mild, where affected sheep remain with all the appearance of health. Such is the case in Algiers. It is then indicated to apply preventive clavelization upon all sheep for exportation; that alone will give the importing countries security, and it is without any danger for vaccinated sheep, there being absolutely no losses caused by the operation, therefore the owners of animals have every reason to have their stock vaccinated.

Herbivorous animals bitten by mad dogs die in great numbers. I have seen 27 cows succumb to the disease out of a herd of 30, which had been bitten by a rabid dog—the owner was ruined.

The appearance of rabies can be prevented by injecting the rabid virus, as it is furnished by the mad animal, into the veins of the bitten patient. This will succeed even several days after being bitten. The operation does not succeed in carnivorous animals. But in herbivorous (sheep, goats, cattle, and even horses) immunity is obtained after several injections.

Foot-and-Mouth Disease gives a certain amount of immunity to animals which have recovered from a first attack. But its duration varies very much. This, with the excessive contagiousness of the disease, makes it so dangerous and does not permit of an efficacious prophylaxy. Nevertheless, when foot-and-mouth disease appears in an establishment where there is no chance to limit the spread of the disease, it is indicated to have all the animals take it ; the disease is thus made less serious, its duration is shorter ; it is an economy of time and of money. The infection is produced by rubbing on the tongue of the healthy animal a piece of cloth which has been passed over the tongue of a sick animal.

One of the first applications of this method is of Belgian origin. It is due to Dr. Willems, of Hassell. In 1848, when experimental medicine was in its infancy, Willems demonstrated the benefit that could be derived from inoculation against contagious pleuro-pneumonia. He proved that the disease could be inoculated, and that when it was in the peripheric regions, the ear or the tail, the lesion produced was ordinarily mild ; finally, he demonstrated that after recovery the animal was refractory to the natural disease. This great discovery has had the fate common to many others, and it was specially in Belgium that it was contradicted.

Numerous experiments made in every country upon large numbers of animals have proved the entire efficacy of the method; the inoculation of Willems applied as a preventive upon animals free from the germ of the disease, protects them absolutely against the natural infection. This inoculation has found its way into the French Sanitary Commission, which orders it upon all animals in an infected commission stable.

Unfortunately, in an infected stable there are many animals that have the germ of the disease; for this reason inoculation cannot always give good results: to give all that it can do, it must be applied as a preventive.

To inoculate as a preventive the virus of rinderpest, anthrax, rouget of swine, Texas fever, or horse sickness must not be thought of; it would give as serious a disease as the natural one and kill most of the inoculated.

* * *

The discovery of vaccine is the fact of a lucky hazard, but a luck which happens only to those who are worthy, those who know how to see and understand the meaning of what they see. The service it has rendered cannot be appreciated, and it is but justice to consider Jenner as one of the greatest benefactors of humanity. But the discovery of Jenner remained an isolated fact. It belonged to another genius, our great and immortal Pasteur, to generalize the principle of vaccination, to immunize at will against diseases much more serious than small-pox itself.

To take a virus whose inoculation is fatal, cultivate it artificially, modify it to such an extent that it gives to inoculated individuals only a benignant disease, a disease readily cured which renders animals refractory to natural infection, always fatal to the witnesses, such is the capital work of Pasteur in medical science.

The attenuation of the viruses and vaccination by attenuated viruses has been the greatest biological discovery made for centuries.

You all know the celebrated experiments of Pouilly-le-fort.

The Agricultural Society had offered to Pasteur to make public the proof of the unlikely facts he had announced. It had collected 50 sheep from districts where anthrax did not exist. Of these 50 Pasteur was to vaccinate 25, the others were to be used as witnesses. All the 50 were to be inoculated with the same unweakened virus; the 25 witnesses were to die in 48 hours, while all of the vaccinated were to remain well. The experiment was carried out and two days after the testing inoculation the 25 witnesses were dead; none of the vaccinated seemed to be sick.

This is an undeniable demonstration of all that Pasteur had advanced. This experiment marks a memorable date in the history of microbiology: it is the triumph of the method. Now, the proof is made in an incontestible way of the value, theoretical and practical, of the new science; unbelievers can no longer discuss it; those who were hesitating—and they were legion—carried away by universal enthusiasm, have joined the small troop of the first hour, and now it is an army. Now we will be able to work in peace and to collect all the fruits of victory; all the work prepared by the Master is going to be continued, and the gathering of the discoveries he has opened to us will be carried out. * * * Indeed, they are becoming so beneficial that they have gone beyond all expectation, and so numerous that they can scarcely be counted.

The work of Pasteur in medical science goes back to 1876—not yet 25 years ago. It has provoked such change that it can be said that nothing like it has been produced in twenty centuries and this change has been so fecund and so beneficial that in these twenty-five years medicine has made more progress than it ever made—etiology, hygiene, sanitary police almost entirely renewed; hospital gangrene, gangrenous septicæmia, purulent infection, puerperal fever, chased from the hospitals, surgery provided with such security that every audacious operation is permitted; prophylaxy of infectious diseases based on the marvelous discovery of the administration of viruses and of the vaccination with weakened viruses; the obscure mystery of immunity almost entirely revealed; the serum of immunized animals applied—with what success—to the treatment of the most dangerous diseases; all this unconquerable scientific group proceeds from Pasteur, and it can be said that we are only at the beginning of a new era which history will name after him. (Repeated applause.)

The medicine of animals was the first to benefit, and that widely, by the great discovery of the vaccination of Pasteur.

Anthrax diseases in all their forms, rouget of swine, those enemies of twenty centuries which prevailed in the same regions, periodically ruining them, in spite of all the constant and powerless efforts of veterinarians. Preventive vaccination has mastered them, and when it has been systematically applied the diseases have disappeared, to such an extent that there scarcely remains a trace of the losses they caused in other days.

During the last years human medicine has also benefited by this great discovery. Hafkine, a student of the Pasteur Institute, who practices in British India, treats the plague and cholera with inoculations of attenuated virus, and we have read in the newspapers that 60 per cent. of the soldiers in the English army received before leaving for South Africa similar inoculations against typhoid fever. This is a new application of this great discovery.

* * *

We do not know yet how to immunize animals against glanders and tuberculosis; perhaps we never will, for they are diseases that may be again contracted. Glanders may be cured, also tuberculosis, but the recovered animals may again take the disease as if they had never had it; therefore it is difficult to see how immunization can be obtained. But if we cannot hope to render animals refractory, we can at least with tuberculin and mallein make an early diagnosis of those diseases, when the animals have only the germ and when no external sign indicates their existence. We can then isolate them and arrest the progress of the disease. It is upon the separation of the diseased that all the prophylaxy of these serious affections rests.

I shall not insist any longer upon those points which have already been treated at length here, in the Congress of 1885. I wish only to mention a new example of the efficacy of separation.

Some years ago I was called to apply tuberculin on a number of Durhams. It was very interesting because the owner had shown himself a great adversary of the method. It had been severely criticised. At a given time, however, he asked me to apply the test on his stock. The results were positive. Out of 51 animals 27 could certainly be pronounced tuberculous and 3 were doubtful; more than 50 per cent. of the herd. Some of the animals were killed, and the post-mortem having confirmed the diagnosis, the owner confessed his error, and was willing to have what was necessary done. The healthy animals were then separated from the sick and kept in another stable.

According to the doctrine of non-heredity of tuberculosis the calves born of tuberculous cows were to be kept separate from their mothers; the correctness of this theory was fully justified, as in three years none of the animals born of tuberculous mothers, 23 in number, have become diseased. As an instance, here is an establishment infected seriously which in less than three years has returned to the original number of animals without the necessity of purchasing a single animal from outside. This is what can be obtained if it is wanted. It is for you to appreciate and recommend it.

I do not overlook the fact that in practice the general application of those measures is full of difficulties. However, it is to the interest of every one to apply it for himself, and in this way the great losses due to this disease, which are constantly increasing, will be suppressed.

Pasteurian vaccination has then rendered unappreciable service to agricultnre in every country; the vaccination of animals is counted by hundreds of thousands throughout the entire world. Yet it cannot be applied in all cases; to give the full effect it must be done as a preventive—that is, to animals which have not yet resisted the germ of the disease; they do not grant immunity except after a certain length of time—which is never less than 20 days—necessary for immunization.

Already noticeable in braxy in sheep, the requirement becomes still more serious in cases of rouget, whose march is so rapid and its effects so serious. If we wait for the disease to appear it is too late, as during the 20 days required to obtain immunization all the animals will have died. We will see directly how to remedy this by resorting to serotherapy.

(3) PROPHYLAXY BY SEROTHERAPY.

This is not the place, nor is there time to explain to you the scientific principles of serotherapy. What is important for you to know is that for many infectious diseases the blood of immunized animals, those which have been vaccinated and saturated with virus, contains substances which are able to destroy the virus or prevent its development, or neutralize the effect of the toxines that it secretes, in such a manner that if the serum is injected under the skin of a healthy animal, it is vaccinated against the inoculation of the virus in doses which are always fatal to the witnesses. You all know the marvelous results obtained by this method in the treatment of diphtheria. The important thing is to know that the serum of an immunized animal can act as a vaccine; it acts quicker than attenuated virus, and its action does not last so long. It can be introduced even after the virus has entered the organism and sometimes after the first manifestations of the disease and still act; when from 5 to 10 cubic centimetres are injected under the skin, a little swelling is observed, which in a few minutes, as the serum is absorbed disappears, the effect produced is immediate; there is this great advantage. But the action of the serum is temporary, it lasts but a little while, 15 days, three weeks at the most; nevertheless, you can observe the great advantages that the serum of immunized animals can render in a stable full of pigs where rouget breaks out. You have had a few cases; you are quite sure that most of your animals will die. In resorting to the serum you can be certain that those that are still hearty are immunized and protected from all danger, and not only those which have no symptoms yet, but also those which are already diseased, as the serum also acts as a curative. The immunity given will not last long, but you can complete the action of the serum and make it more lasting by making a second inoculation a few days later, not with serum, but with pure non-deteriorated virus.

By this method one is certain to arrest the mortality in cases of rouget. This improvement on Pasteurian vaccination will render great service. It is due to MM. Loxens and Schultz, but especially to Mr. Leclainche of Toulouse.

The same method can be applied to *symptomatic anthrax*. Rinderpest can also be treated with success. It has also been applied in several infected countries. The valuable works of Koch, Turner, Theiler, Danisz and Rader has enabled various States of South Africa to overcome the scourge which threatened the bovine species in that country with complete extinction. Nicolli and Adil Bey have obtained the same results in Turkey. Yersies, Traimbault and Carré in Indo-China, and Mad Sieber in Russia. It is an immense triumph over the most serious and most feared disease of occidental Europe.

Mr. Lignierès has shown that antistreptococcic serotherapy is the best mode of treatment for anasarca of the horse.

Animals immunized against tetanus give a serum which possesses a wonderful activity. Inoculated preventively in infinitesimal doses it protects surely against the natural disease. Unfortunately this serum is most often powerless to prevent the progress of a declared case of tetanus. When an animal has that disease there is but little chance of its recovery. The tetanic toxine produced on the surface of an infected wound is absorbed at once and so acts upon the nervous cells that it alters them in an irremediable way; and when the first symptoms appear it is not the beginning of the disease, but of the end. It is too late to cure, and if the dose of absorbed toxine is sufficient to kill, you may use all the serum you wish, it will not act. On the contrary, if you use it as a preventive in almost insignificant doses, 10 cc. for a 1000-pound horse, the horse will be protected. But tetanus, as you know, like anthrax and rouget, is a disease of the soil; it is the sad privilege of some regions; there are countries which have tetanus as well as those which have anthrax. In these, cases of tetanus are so frequent after surgical operations that veterinarians do not dare to perform them. The use of serum has removed all danger. Veterinarians and owners of animals have a security which was wanting for a long time. I have published the result of several thousand observations all gathered from severely infected districts; not one of the 4000 animals treated by this method has taken lockjaw.

There is no discovery which has been accepted and has spread so rapidly as this, and there has been no trouble, as every one knew of the dangers of the disease. The injection protects from a great risk, the expense is trifling and severe losses are spared.

Tetanic serotherapy is also the best mode of treatment for lockjaw; if the serum does not always succeed in curing, there is no doubt that if recovery takes place, it is quicker and the convalescence is shorter. There is every advantage then in using the serum, providing the owner is not told of a sure recovery, but the only chance of cure is by resorting to this mode of treatment.

In animals powerfully immunized against pleuro-pneumonia serum has also preventive and curative properties; but the short duration of the immunity that it gives does not allow us to substitute it for inoculation. It would be better to begin first by inoculation and wait until the first manifestation of the disease appears to inject the serum. This, it may be said, is interesting only to the theoretical point of view.

Finally, serotherapy has also been tried for the treatment of foot-and-mouth disease. You know that the Imperial Government has appointed a commission to inquire into the means of immunizing animals against that disease. You also know that this commission and its president, Dr. Loeffler, have obtained in their laboratory surprising results; they have demonstrated that animals immunized against foot-and-mouth disease give a serum, which mixed with virus, can be inoculated without danger to healthy animals and give them immunity. These animals are resistant to natural contagion. But the truth of the laboratory is not always that of practice; it is something different to make experiments where one is master of every condition in which he operates and that applying to practice the results obtained in the laboratory. You know that seraphine (a mixture of serum and virus) has been tried extensively in many countries, and that the results have been such that Loeffler was compelled to stop the inoculations to undertake the further studies. There is not the shade of a doubt that Loeffler will ultimately succeed in his researches and that on that day he will have rendered to the agriculture of the world a priceless service.

By this rapid examination you can, gentlemen, judge of the progress which has been realized in a few years in the medicine of animals.

It rests with you to vulgarize the knowledge of those methods and to promote their application: veterinarians will prove to you, devoted collaborators, that they are well prepared for the work.

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DR. J. MILLER, for a number of years in charge of government inspection at Ottumwa, Iowa, announces that there is a good opening there for a practical veterinarian.

ANTISEPTIC THERAPEUTICS.

BY J. F. WINCHESTER, D. V. S., LAWRENCE, MASS.

Read before the American Veterinary Medical Association, Sept. 6, 1900.

(*Concluded from page 668.*)

In closing this paper I shall digress from my first statement that new material would not be introduced, and will call your attention to some facts by Dr. A. W. Balch and Mr. W. R. Brinckerhoff, of the Harvard Medical School, relating to a "Possible Cause of Azoturia," and the "Pathology of Azoturia."

A POSSIBLE CAUSE OF AZOTURIA.

A. W. BALCH (Laboratory of Pharmacology, Harvard Medical School).

The similarity between certain of the symptoms existing in the disease azoturia and those commonly found in lead poisoning seemed to make the chemical examination of urines and tissues in these cases desirable.

Examination of the urines from both azoturia cases and normal horses showed the presence of lead in several instances, although negative results were also obtained in both the normal and pathological cases. Chemical examinations were then made of brain, liver, spleen, kidney, and psoas muscle whenever possible, in order that the distribution of lead in the system might be studied.

Organs were taken from normal horses and those in which death had followed azoturia, pneumonia and colic. As in the urines, lead was found in the tissues of cases other than azoturia, but the amounts were much larger and the lead was much more widely distributed in the azoturia cases.

The quantity found in several of these cases, notably the livers, was very large indeed, as shown approximately by the final tests emplcyed, while in cases other than azoturia a large amount was never found.

The qualitative results have been placed in tabular form, but the quantities could not be expressed, as we have no method for accurately determining these small amounts of lead.

ORGANS FROM AZOTURIA CASES.

	Brain.	Liver.	Spleen.	Kidney.	Psoas.	Urine.	Blood.	
12		+	+	+	+	—		
17		+		—		+		
22	+	+	+	+	+	+	?—	Elimination of lead increased by potassium iodide.
23	+	+		—		—		Lead found in urine after potassium iodide.
26	+	+	+	+	—		+	
33		+	+	+	+			
35	+	—	+	—	+	—	+	
37	+	+	+	+	+		+	

ORGANS FROM CASES OTHER THAN AZOTURIA.

	Brain.	Liver.	Spleen.	Kidney.	Psoas.	Urine.	Blood.	
25		+	—	+	+	—		Pneumonia.
27		—	—	—	—			Runaway.
28	+	+ —	—	+		—		Some interstitial change in kidney. Broken leg.
34		+	—	—	+			Colic.
36	—	—	—	—		?+		Colic.
38	—	+	—	+	—			Colic.

Urines.		Azoturia.
1.	+	
2.	+	
3.	+	
4.	+	
5.	—	
6.	+	
7.	+	
12.	—	
15.	—	
16.	+	
17.	+	
21.	+	
22.	+	Increased by potassium iodide.
23.	—	Found after potassium iodide administration.
24.	—	
29.	—	
30.	—	
31.	—	

Urines.		Normal Horses.
8.	—	
9.	+	
10.	—	
11.	—	
13.	+	
14.	+	
25.	—	
28.	—	
32.	—	

The results of chemical examination of the spleen are particularly noticeable.

In every case of azoturia lead was found in the spleen, while it was found in none of the other cases examined.

Potassium iodide was administered in two cases of azoturia, numbered in our tables 22 and 23.

In case 23 no lead was found before the administration of potassium iodide, but after its use very large tests were obtained.

In case 22 the amount eliminated was greatly increased.

Lack of material prevented similar experiments in normal horses. For examination of urine about one litre was used in each case. For tissue examination one-half the brain, weighing when fresh about 300 G. or dried 50 G., and of other tissues 300 G. fresh or 100 G. dry, were used. The tissue or dry urine was treated with an excess of nitric acid and allowed to stand until the violent reaction was over.

To the resulting fluid, after concentration to a small bulk, 28 cc. concentrated sulphuric acid was added and the heat continued until charring resulted. The fat was not removed. The process was then continued by alternately adding nitric acid and charring by heat until the organic matter was practically destroyed. During the heating a part of the sulphuric acid was always decomposed, so that the product (free from nitric acid) varied in bulk from 10 cc. to 25 cc., depending in part upon the amount of solids present.

This product was diluted with an equal volume of water and the mixture again diluted with an amount of alcohol equal in volume to the sulphuric acid and water used. From this mixture, after standing several days, the lead was deposited as sulphate. The deposit was washed on a paper filter with 50 per cent. alcohol made acid with sulphuric acid, and was then extracted with 10 per cent. ammonium acetate solution. From this solution the lead was precipitated as sulphide, and in case much iron was present it was removed with very dilute hydrochloric acid. The lead was then converted into chloride by concentrated hydrochloric acid and removed from the filter by hot water. After evaporation the lead chloride was dissolved in a few drops of hot water, the solution filtered if necessary, and four final tests made, *i. e.*, potassium dichromate, potassium iodide, sulphuric acid, and hydrogen sulphide. Lead was considered as present only when all four tests were obtained.

The paper is presented merely as a preliminary statement of the facts obtained thus far, and in no sense as conclusive evidence of the origin of azoturia. The wide distribution of lead makes proof by chemical means alone impossible, but the results obtained are certainly suggestive.

An attempt is to be made to produce the disease in normal horses by the administration of lead salts.

THE PATHOLOGY OF AZOTURIA.

(Preliminary Communication.)

W. R. BRINCKERHOFF, S.B. (From the Sears Laboratory of Pathology.)

The material upon which the following description is based was derived from eleven autopsies upon undoubted cases of azoturia, occurring in Boston between January 1 and May 1, 1900. The work was undertaken as supplementary to the chemical investigations of Dr. Balch, and is not intended to be a complete description of the pathology of the disease. The liver, spleen, kidney, and psoas muscle only were studied. For control, the organs from three normal horses, three cases of colic, and one of pneumonia were examined.

Gross Anatomy.—The organs were examined as soon after the death of the animal as possible, usually within six hours. The following points were observed:

Liver.—In the acute cases the liver, on section, showed nothing abnormal. When the disease had been of a longer duration the cut surface presented small pale yellow areas corresponding in distribution to the centres of the lobules.

Spleen.—In the spleens of two cases there could be felt firm lumps from 1 to 5 cm. in diameter, which on section of the organ were seen to be of a deeper red color than the rest of the spleen substance. These hæmorrhagic infarcts have been frequently observed in the spleen in azoturia. In the other cases examined nothing of note was seen in the fresh spleen.

Kidney.—The examination of the fresh kidney showed nothing but a marked congestion of the organ.

Psoas Muscle.—In all accounts of azoturia the psoas muscle is spoken of as exhibiting a marked degree of fatty degeneration. In every case examined this muscle on section was notably pale, and bits of it teased out in glacial acetic acid showed many fine and coarse fat drops, both free and within the muscle fibres. The same appearance was noted in a case of pneumonia.

Microscopic Anatomy—Technique.—All tissues were fixed in Zenker's fluid for twenty-four hours, washed in running water overnight, and hardened in 80 per cent. alcohol. The material was then cut into small pieces and passed through two changes of 95 per cent. alcohol, two changes of absolute alcohol, one of chloroform, and one of chloroform saturated with paraffin, remaining in each twenty-four hours. The tissue was then embedded in hard paraffin and cut. Sections from each organ were stained with Unna's methylene blue and eosine, Mallory's connective tissue stain, and alum hæmotoxylin.

Liver.—All the livers examined had certain characteristics in common. The capillaries in all were markedly injected. The liver cells contained fine brown granules, and the perivascular spaces were dilated, containing granular material taking the acid stain, presumably precipitated albumen of the serum. This pigment in the liver cells occurs in the livers of normal horses, but not to the extent seen in azoturia. Aside from these slight variations from the normal, two distinct types of lesion were found. In five cases the picture was one of a diffuse process, while in four the lesion was distinctly local in character.

In the first type the centres of the lobules seemed most affected. In the area around the central vein the liver cells were relatively small, distorted, and presented a greater or less degree of vacuolation.

In the second type, small areas, bearing no constant relation to the anatomical structures of the organ, were to be seen, in which the liver cells had more or less completely disappeared, the space left being filled with dilated capillaries. Around such areas the nuclei of the liver cells frequently did not stain, the protoplasm being vacuolated and often invaded with leucocytes.

The focal and diffuse lesions were not found associated in any of the cases examined.

Spleen.—The spleen presented no constant lesion. In seven of the nine examined histologically there was a large amount of brown pigment, in the form of spherules from one-half to one u. in diameter, enclosed within cells in the pulp. Two spleens showed in the centre of the lymph follicles a circumscribed area, composed of epithelioid cells, many of which contained in their protoplasm nuclear fragments. The appearance simulated closely that seen in diphtheria.

Kidney.—The kidneys exhibited the most constant lesions of any of the organs examined. In every case there was acute parenchymatous degeneration, shown by a more or less extensive degeneration of the convoluted and the collecting tubules. Casts were occasionally found. In six of the ten cases in which the kidney was examined microscopically, there was evidence of a chronic interstitial process, consisting in small areas in round cell infiltration, containing atrophied tubules (one case), or in the formation of interstitial tissue around the glomeruli, with occasional bands of connective tissue surrounding atrophied tubules and glomeruli. There was, in several cases, a diffuse increase in the interstitial tissue of the pyramids. In one kidney almost every glomerule was surrounded by more or less connective tissue.

Psoas Muscle.—As a matter of routine the psoas muscle was examined histologically in every case. In seven out of ten there was a more or less extensive degeneration of the muscle fibres. The change was selective, attacking some fibres and leaving wide areas of normal structure intact. The affected fibres were unevenly swollen, and contained hyaline areas which were irregularly eroded and often invaded by leucocytes. In a single muscle fibre degenerated portions were seen alternating with apparently normal muscle structure. A dissolution of parts of some fibres had taken place, and the sarcolemma could be traced from one hyaline mass to another, the intervening space containing only a small amount of granular detritus. In some cases there was evidence of repair shown by the presence of young connective tissue cells around the necrotic fibres. In the psoas of the one case of pneumonia examined the same appearance of degeneration was seen, and was there rather more intense than that observed in any of the azoturia series.

Summary.—In the eleven cases of azoturia examined changes were found in the liver, spleen, kidney, and psoas muscle. The lesions were:

Fatty degeneration of the liver. (Five cases.)

Focal necrosis in the liver. (Four cases.)

Proliferation of the epithelioid cells in the lymph follicles of the spleen. (Three cases.)

Hæmorrhagic infarcts in the spleen. (Two cases.)

Pigmentation of the spleen. (Seven cases.)

Parenchymatous degeneration of the psoas muscle. (Nine cases.)

Acute parenchymatous degeneration of the kidney. (Ten cases.)

Chronic interstitial nephritis. (Eight cases.)

Conclusions.—(1) The acute degenerations of the liver and kidney, the proliferation of epithelioid cells in lymph follicles of the spleen, and the focal necroses in the liver are similar to lesions found in man during various of the acute infectious diseases. In the case of the human being such changes are generally regarded as manifestations of a toxæmia.

(2) The pigmentation of the spleen indicates nothing more than a destruction of blood corpuscles, and is common to a number of diseases in both man and animals.

(3) The degeneration of the psoas muscle is quite analogous to the Zenker's degeneration seen in typhoid fever.

(4) The chronic interstitial nephritis would indicate either that some toxic substance had acted for a considerable time, or that there had been previous attacks of an acute nature.

We have, then, the picture of a pathological process combining chronic and acute factors. This condition seems most reasonably explained by postulating the presence in the organism of a toxic substance, preferably one capable of causing both acute and chronic changes.

In this study of the lesions found in azoturia, pathological changes have been found which merit further study, and it is my intention at some later date to carry out this investigation in more detail. Experiments upon animals have been begun, but the material at hand from that source is not sufficient to be reported at present, and is also reserved for later publication.

The table formulated by Dr. Balch gives the result of the chemical examinations made by him, the heavier lines showing those cases in which the larger amount of lead was found.

The treatment that has been so favorable in these cases of late, the iodide of potass. is not a digression from the object of this paper, but in my opinion helps to sustain the theory of Antiseptic Therapeutics.

Works referred to: Finlay Dun's "Veterinary Medicines." *Veterinary Record. Medical Record.* AMERICAN VETERINARY REVIEW. "Pathogenic Bacteria," McFarland. "Practical Therapeutics," Hair.

CONTAGIOUS CONJUNCTIVITIS IN CATTLE.

BY WM. PETRIE, V. S., WHEELING, W. VA.

A new disease. (?) We hear of new diseases occasionally, but usually on investigation find it to be some well known disease that may not be common in the section from which the report comes. In this case I believe we have a new disease. My experience with it has been limited. Others may be familiar with it, but so far I have seen very little printed about it. I will report my knowledge of it that it may be discussed and that others may not be entirely off their guard when they see the first case.

After seeing my first case I wrote Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, who kindly informed me that the disease had been known about two years, and also gave a treatment for it. He did not name it, but I saw a few lines in a Western paper that gave it the name I have used here.

Definition.—The name itself carries its full meaning. It is inflammation of the conjunctiva of the eye, and is contagious.

Causes.—The disease is surely due to some form of infection, for when it is once introduced into a herd it spreads until all or nearly all are affected.

The danger of infection is not so great; other cattle may cross and recross the path of those affected and not contract the disease, but of those that belong to the herd very few escape.

The disease seems also to originate spontaneously, as it appears in sections where it has never been known to exist and without any visible means of its being transmitted from any infected district. It is slow in spreading and may take several months to complete the rounds of a herd of twenty-five or more.

Symptoms.—The first symptoms are sensitiveness to the light, with a copious flow of tears, followed by the conjunctiva becoming thickened, white and opaque. The whole eyeball seems to swell until the lids cannot be closed. As the inflammation subsides the opacity of the conjunctiva disappears first from the edges, the white spot becoming smaller until it disappears entirely, or when it is reduced to the size of a dime it sometimes becomes very vascular and looks like a large red wart on the centre of the eye. This in time will also disappear and the animal be as good as ever except for the loss of flesh, and if it be a milch cow a great reduction in the flow of milk also.

Treatment.—My first treatment was to bathe the eyes in warm water and apply direct to the eyeball a weak solution of boracic acid and atropine, which did very little good.

Following the advice of Dr. Salmon, I next used a solution of boracic acid to bathe the eyes and face, and then placed in the eyes a small amount of iodoform-vaseline ($\frac{1}{12}$ well mixed); this gave very marked relief. After that, in place of the iodoform-vaseline ointment, I substituted an ointment made of europhen and vaseline ($\frac{1}{25}$ warmed and mixed), and obtained still better results.

Right here let me say that I find europhen a much better antiseptic than iodoform, as it goes farther and has greater medicinal powers. The ointment should be placed inside the eyelid, and then by rubbing the lids together the ointment is spread over the whole eyeball. Two or three dressings as described above will be sufficient, except in the cases where the vascular fungus appears.

In two cases where the fungus appeared I used a 5 per cent. solution of protargol, applied with a camel's hair brush, and one application was sufficient. Since then I have had no opportunity to try the protargol on a case of this kind, but from its prompt action in these cases I feel sure that it is the remedy to use.

During the past summer this affection of the eyes of cattle appeared in several places in our State, but no new cases have been reported since the cooler weather set in.

One man reported recently that his herd of fifty steers were all right again without the loss of an eye.

VETERINARY TOPICS OF TO-DAY.

By W. J. Martin, M. D. C., Kankakee, Ill.

President's Address before the Illinois State Veterinary Medical Association, Nov. 15, 1900.

Gentlemen:

It is with pleasure that I again welcome you to this our annual convention. It is also a pleasure to report to you that during the past year the conditions surrounding the practice of veterinary medicine and surgery have materially improved. The market prices of all kinds of live stock have increased in value and in numbers; more especially is this true of horses. The visions of the dreamers who saw in the near future the displacement of the horse by mechanical contrivances, have been rudely dispelled, and to-day the horse holds a higher place in the estimation of the nations of the world than ever before in its history. In military operations, it has been found that rapid movements of armies cannot be accomplished without the aid of the horse. With the object of strengthening their transport and cavalry service, the nations of the world at the present time are straining every nerve to acquire large numbers of suitable horses for this purpose. So enormous has this demand been during the past two years, that the price of horses has fully doubled in value.

In the field of veterinary literature during the past year there have appeared several valuable books and monographs, some of these being of much value to the busy practitioner. Among the more valuable of these may be mentioned the "Fifteenth Annual Report of the Bureau of Animal Industry." This volume is replete with a vast amount of information, and should find a place on the book-shelf of every veterinarian. An excellent monograph on the diseases of poultry, from the versatile pen of Dr. D. E. Salmon, contains a fund of information upon a hitherto neglected branch of our science. The second part of Vol. I. of that excellent work, entitled "A Treatise on Surgical Therapeutics of Domestic Animals," by Profs. Cadiot and Almay, translated by Prof. A. Liautard, has lately been issued. It is filled with a vast amount of the latest information on the best methods of performing the routine surgical manipulations met with in practice. A work just off the press is a small brochure entitled "A Course in Surgical Operations." It is translated from the German of Dr. Pfeiffer by Dr. W. L. Williams. While many of the operations recommended in this work are a decided innovation in American veterinary surgery, the value of several, from a practical point of view, may be questioned. There is a vast amount of difference in point of utility and also from a financial standpoint in performing an experimental operation upon a worthless animal in the surgical clinic of a veterinary school, and that performed upon a valuable animal in private practice. In the former, if failure marks the operation, no harm is done; whereas in the latter, failure often means long and expensive litigation, and perhaps the ruin of a bright professional career besides. It might be worth while, therefore, that the practicing veterinarian exercise caution in performing new or untried surgical operations upon valuable subjects.

While upon the subject of surgical operations, I wish to call your attention to the gratifying results to be attained in treating surgical wounds of the lower animals antiseptically. An erroneous idea appears to exist among a large number of veterinarians that it is an utter impossibility to perform aseptic operations in veterinary surgical practice. I wish to say that a faithful attempt to carry out surgical asepsis in veterinary practice will be rewarded with the most gratifying results. The day of "laudable pus" in veterinary operations (at least in the majority of them) is a thing of the past; for we know beyond the shadow of a doubt that the formation of pus is a physical impossibility without the presence of pus-forming bacteria.

A subject to which I wish to call your attention is the treatment of equine tetanus by the hypodermic injections of carbolic acid. This method has been employed to a limited extent in cases of acute tetanus in human practice, and with the most excellent results. It has also been somewhat extensively used in England by a few veterinarians, who have reported good results with it. I have, during the past summer, used it to a limited extent, and am satisfied that in cases of acute tetanus, if it is given early and in large doses, it is superior to any other drug in our materia medica for the treatment of this most fatal disease. Carbolic acid does beyond a doubt act as an antitoxin to the ptomaine intoxication of the blood in cases of tetanus. But to accomplish this result it must be administered early in the initial stage of the disease and also in very large doses. The formula used by me in administering carbolic acid in cases of tetanus is as follows: Carbolic acid, 95 per cent., 1 ounce; boiled or distilled water, 4 drachms; glycerine, 4 drachms. Mix. Sig. 2 drachms of this mixture is injected into the neck every 2 hours for the first 24 hours to 48 hours, and about every 4 hours afterwards. The effects of these injections after the first 24 hours are most favorable; the spasmodic contractions of the muscles of the neck are lessened in force and intensity, the pain and anxiety of the countenance disappear to a certain extent, and the patient appears to experience much relief and comfort. At the seat of each injection a swelling occurs, but this gradually subsides in the course of a few days. Loss of hair does not as a rule occur, unless the injection is made very superficial under the skin, and even then the loss is rarely permanent. It is best to insert the needle somewhat deeply into the tissues. The injections appear to me to have a slightly constipating effect on the bowels, though whether this was increased much more than is usual in cases of tetanus I am unable to say. However, in using hypodermic injections of carbolic acid in the treatment of tetanus we should supplement it with other appropriate therapeutic measures, such as placing the animal in slings, dark and quiet corners, sloppy diet, rectal enemas, etc.

The latest innovation in human surgery is spinal anæsthesia with cocaine, for the painless performance of surgical operations upon the inferior part of the body. This operation, which is attracting so much attention at the present time among surgeons, was first discovered or used by Dr. J. L. Corning, of New York, in 1885. Dr. Corning first experimented upon dogs, and afterwards upon human subjects. The operation, which is not without danger, is performed as follows: The patient being placed in a slightly bent position, a hollow needle is inserted between the fourth and fifth lumbar vertebræ, and passed downward untfl the neural canal is entered; this is known by a few drops of spinal fluid being discharged through the needle; the syringe containing from 10 to 15 minims of a two per cent. solution of cocaine is then attached and the solution slowly injected. Anæsthesia usually occurs in from ten to fifteen minutes. In veterinary practice the operation could be successfully used on dogs and other small pet animals.

In performing surgical operations, even of the most trivial nature, it should be our object to perform them with the least amount of pain to the suffering animal possible. This can be readily done in minor operations by the injection of cocaine or eucaine hypodermically, and in the more major operations by chloroform anæsthesia. We should, as veterinarians, ever bear in mind that time-honored adage, "A merciful man is merciful to his beast."

A remarkable verification of the theory that malarial fever was propagated by the bite of certain species of mosquitoes has lately come to light. The experimenters, Drs. Sanborn and Low, have, during the past summer months, lived in one of the most malarious districts of the Roman Campagna without contracting malaria. The only precautions taken by these men and their servants to escape the disease was the spending of the nights in specially constructed houses so entirely protected by netting as to entirely exclude the night-flying anophles, or malaria-propagating mosquito. It has been demonstrated by Ross that the mosquitoes are not of themselves the sole cause of malaria, but simply act as hosts to the rod-like bacilli which are found in the blood of those suffering from malaria. This discovery of the etiology of malarial fever will no doubt be the means of laying bare the secrets surrounding the origin or etiology of many of the miasmatic fevers, such as South African horse sickness, rinderpest in cattle, and yellow fever in man, diseases which at the present time render many of the most productive regions of the globe uninhabitable to mankind.

I wish to thank the members of this association who have so kindly assisted me in discharging the duties of president of this society during the past two years, and I wish also to assure them that I shall always look back upon the same with the most grateful feelings.

AT THE CHRISTMAS EXAMINATIONS of the Ontario Veterinary College the board of examiners awarded diplomas to the following gentlemen: Robert K. Bryant, Sunderland; Herbert Killips, Tonawanda, N. Y.; Z. T. McNees, Butler, Pa.; Orange Judd Phillips, Warrensburg, Mo.; W. J. R. Ramage, Mooresburg; Ira B. Rivenburgh, Chatham, N. Y.; Herbert L. Switzer, Springfield, Mass. Primary examinations anatomy—Norman A. Anderson, passed primary in anatomy; Thomas H. Monahan, passed primary in anatomy.

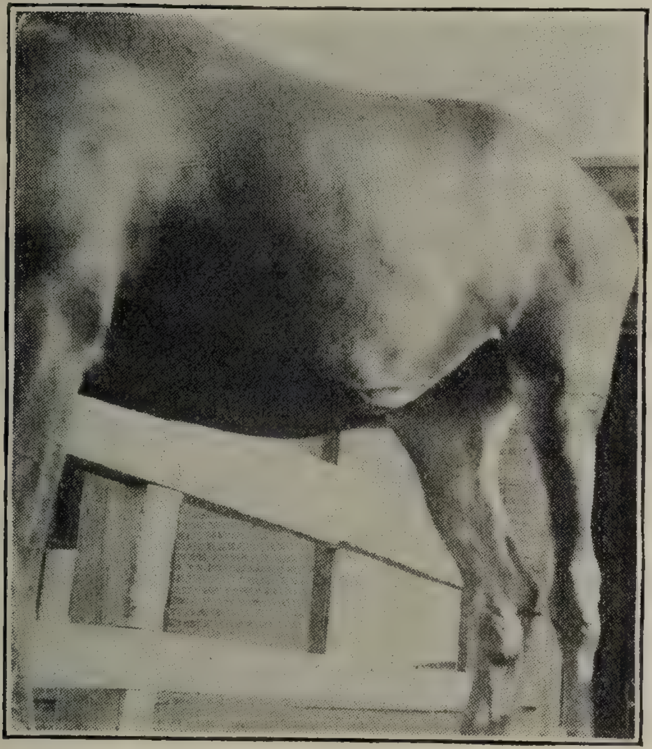
REPORTS OF CASES.

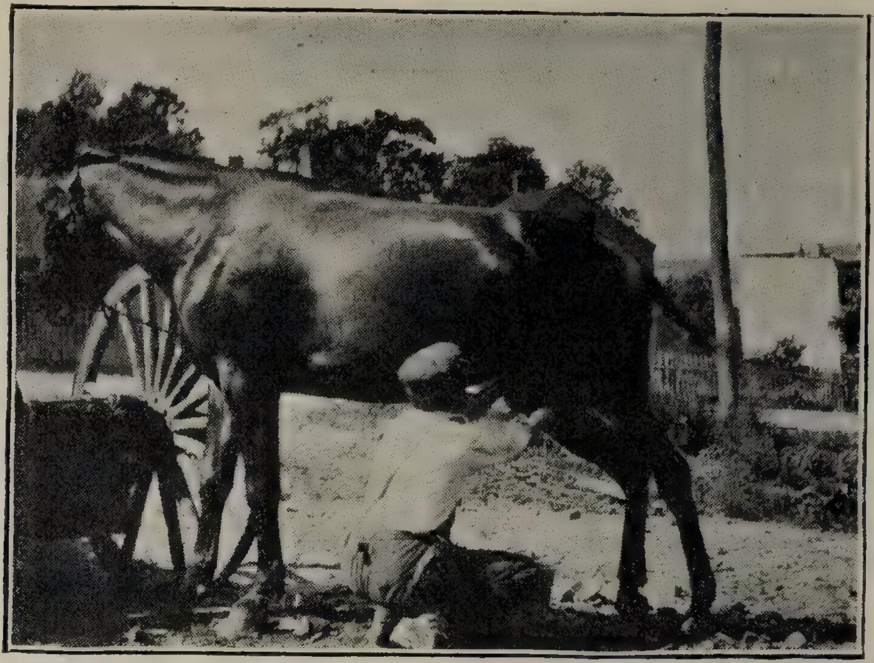
"*Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.*"

LACTATION IN A VIRGIN MULE.

By Robert W. Ellis, D. V. S., New York City.

Upon visiting the stables of one of the sub-contractors of the underground road of New York City, which contained a very large number of young mules just shipped up from a Kentucky mule-breeder's farm, my attention was called to a mule whose mammary glands were distended with milk, and a remedy to check it requested. I immediately became interested, and examined the mule carefully to try and discover whether she was pregnant, had given birth recently, or was at her period of œstrum, but could find nothing that would lead me to believe either or any of such conditions existed. She had been milked that morning at six o'clock, but at my request a young Cuban who was taking care of the mules readily milked me a quart bottleful, it then being about the middle of the forenoon. This milk I took to a chemist to test for me in regard to its composition, as I thought of reporting the case, and supposed it would be interesting to have such a report accompany it; but the chemist allowed the sample to perish before he got around to it, so no test was made. I did not administer any medicine to





check the flow of milk, but kept the case under observation for several months, often seeing her milked by the Cuban, as per photograph, and she would freely milk four quarts at a milking of good rich-looking milk, of which my dog often drank while warm and foaming; but I never sampled it myself. Her abdomen never changed in volume as time went on, and she eventually proved herself *not in foal*, nor do I believe she ever had been. I believe her to be a virgin mule. As such, the case is interesting; if I am wrong, and she has had a foal, it is by no means any less interesting in the case of a mule. In addition to the photo showing the mule being milked, I send one in which I endeavored to show the mammary glands filled with milk, but despite my requests for the Cuban boy to defer milking her until I could take a photograph of her in the forenoon, he invariably forgot, and milked her as usual; so getting tired of taking my camera there with me, I finally took the enclosed photo one morning after she had been milked, and if the cut reproduces those black glands, situated as they are in the shadow formed by the sides of the region in which they are located (which is somewhat doubtful), you will be able to see to what extent they are developed even when not distended by the presence of milk in this hybrid animal.

INVERSION OF UTERUS IN A MARE—RECOVERY.

By R. J. MICHENER, V. S., Lebanon, Ohio.

I was called at 2 A. M. May 2, 1900, to see a mare in the country, eleven miles distant. On arriving, found her lying down in the corner of a grass field, unable to rise on account of the weight of the protruding uterus, which was completely inverted.

History as follows: Mare had foaled one week previous without assistance or trouble. Had been doing well until the evening previous, when owner thought she had the colic, and turned her out to roll, but it soon proved to be something else.

I gave morphia sulph., gr. x, hypodermically, and proceeded to cleanse the uterus with warm water and placed it on clean sacking. I now secured her front feet so she could not rise; then with two assistants, one at the head and the other to help me, we proceeded to return the protruding organ, but the severe straining of the patient prevented, so I gave another injection of morphia, gr. viii, and waited a few minutes, when we made another unsuccessful attempt. The morphia had but little effect in preventing straining, so I placed a strong surcingle around the mare's body just in front of the hips and drew it tight, which prevented severe straining, and then we replaced the uterus without further trouble. I kept my arm in the womb a short time, then allowed the mare to rise and walk to the stable, and made a floor of long planks, with the rear ends raised so as to cause her to stand with hind parts higher. She went to eating with a good relish. I prescribed aconite and fluid extract cannabis indica, to be given every two hours, and advised very light diet. The morphia caused dilatation of the pupil and full pulse, which I think was a benefit in the way of preventing straining after the return of the organ. I left with directions to loosen the surcingle as circumstances would permit. She made a rapid recovery and the foal suffered but little, as we let it run with her right along.

Dystokia, with Sequelæ to Mother and Calf.

Before leaving, however, a neighbor of my client called, requesting me to go with him to see a cow which showed signs of labor the evening before, but had made little if any progress. I did so and found a fine Jersey cow standing quietly in the stable. On examining her vagina found front feet of fœtus protruding, the head caught on the cow's pelvis. That was easily straightened, but labor pains had ceased, and did not return on manipulation. I now gave hypodermic injection of ext. ergot ʒ i; waited a few minutes and inserted my hand in vagina again, when labor was resumed, and with some assistance she was soon delivered of a fine large calf. I soon perceived the cow paid no attention to her offspring, so we rubbed it off nicely. I left, advising owner to give calf necessary assistance. I heard nothing more from my patient for a few days, when I was told the cow was recovering from an attack of parturient apoplexy, and the calf died from the effects of the scours.

PULMONARY EMPHYSEMA IN A COW.

By C. H. Sweetapple, V. S., Ontario Veterinary College, Toronto, Canada,

Among the numerous post-mortem examinations that I am accustomed to make on cattle for butchering purposes in the city of Toronto, Canada, for the Health Department of the city, the following case may be of interest to your readers, as so marked a case of "pulmonary emphysema" in the ox tribe, and the animal otherwise in perfect health, is probably seldom met with.

A short time ago I was called to the Toronto cattle market to examine a fat cow. Her respirations were very frequent, but *not abdominal;* temperature 102° F.; pulse normal; healthy moisture on the nose; auscultation revealed no mucous râles in the trachea or bronchi; in fact, no abnormal sounds whatever that I could discover. On percussion of the thorax, I fancied that the right side was a little more resonant than the left. But there are certainly better places for auscultation and percussion than a crowded cattle market. There were no febrile symptoms whatever.

The cow was ordered to be retained for a few days and then to be butchered under inspection, as it was probable that by rest and quietude for a short time her respirations might improve. Four days afterwards I again examined her at the slaughter-house. I found no change in the respirations; they were quite as frequent as before, and all the other physical signs of health as before. I was told that the appetite and rumination, as well as the evacuations from the bowels and kidneys, were normal.

The animal was then butchered in the ordinary way, the viscera removed, and all carefully examined.

There were no adhesions, abnormalities nor pathological changes of any kind that I could discover, with the exception that the greater part of the large lobe of the right lung was greatly distended with air ("interlobular emphysema"). The distension being much greater than the same condition in the horse, owing to the well known fact of the much greater amount of areolar tissue in the lungs of the ruminant. The carcass was well nourished and fat.

The only history I could learn of the case was, that the farmer had said that the animal's breathing had been as described "ever since several months ago, when she had been chased out of a field of standing corn by his dog; her stomach was fully distended with green food at the time, and she had been pretty well chased."

FORLORN CASE OF PARTURIENT PARESIS—EXCESSIVE MEDICATION—RECOVERY.

By D. D. KEELER, V. S., Salem, Oregon.

Saturday, September 29, a man living in the north end of Salem came in a great hurry for me, stating that his cow had had a calf on the 27th out at his brother-in-law's, on the south end of Howell Prairie, about ten miles from Salem. After asking him a few questions I thought probably his cow was down with paresis, and on arriving I found my suppositions well founded. Found her down out in a wood pasture, lying on side, moaning, breath very short, pulse very weak, numbering sixty, temperature 105; would not pay any attention to her calf.

On trial found she could not swallow. Immediately proceeded to give her Schmidt's treatment (200 grains iodide of potassium) and then placed her on the sternum. Kept her there by putting around her bales of hay. I also gave her eserine-pilocarpine, gr. iv, hypodermically. I commenced this treatment about 3 P. M. and found at 5 P. M. that she could swallow; the eserine-pilocarpine disturbed the bowels considerably and started up borborigmus, but did not cause any passage therefrom; I now gave by mouth one and one-half pounds sulphate magnesia, four drachms aloes, two drachms powd. nux vomica, 10 minims croton oil and one drachm powd. ginger, in three quarts warm water; gave it very slowly, allowing plenty of time for her to swallow; gave some directions about caring for her and left some stimulants and supportive treatment, and returned to the city.

Returned quite early Sabbath morning; found her about as I had left her the evening before, the bowels seeming to trouble her some. Immediately gave her again 180 grains iodide potassium, according to Schmidt's treatment; also gave her a good large injection of water with one ounce fluid extract belladonna in the water per rectum. She soon passed quite a large stool and immediately began to come to herself, and by 5 P. M. was on her feet, though rather wobbly. I had her given a few doses each day of a stimulating tonic and she made a complete recovery. I have described this case more minutely because it was the first case that I was successful in where the power of deglutition had passed before I could commence the treatment, and by these hope to encourage to a more persistent effort some one of my fellow practitioners.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By ADOLPH EICHHORN, D.V.S., New York City.

TEST INOCULATIONS AGAINST TEXAS FEVER [*Report of the Commission of the Soc. Centrale de Méd. Vet.*].—In the November number of the REVIEW I gave a brief account of the investigations of Lignière in Argentina, in regard to the dreadful malady "Tristeza," or, as it is called here "Texas fever." In the same article I mentioned the appointment of a commission, consisting of Messrs. Mollereau, Moussu, Nocard and Railliet, to investigate the immunizing effects of the inoculations discovered by Lignière. The report is as follows: "The test inoculations were undertaken in the presence of the members of the commission, and for the occasion five cattle were employed. Two cows (No. I and No. IV) were inoculated by Lignière, after his arrival from Argentina, with the natural disease. Both animals became affected in a mild way, so that they could be taken as immunized. Two cows (No. II and No. III) were submitted, July 5, to the inoculation as recommended by Lignière, the effect of which was only a slight hyperthermia. The fifth animal (fully developed) was only to serve as control animal and was not subjected to any treatment. On July 15 the five animals received subcutaneously injected 5 cc. each of virulent blood. The two cows, No. I and No. IV, which recovered from the slight attack of the disease, did not show disturbances of any kind, the appetite remained good and the temperature normal; the injection therefore had no effect on either animal. The other two cows, No. II and No. III, behaved in the same manner as No. I and No. IV, the temperature always being normal, thereby showing the preventive inoculations to be an excellent success, as the test animals did not show the slightest disturbances. In the remaining animal, No. V, nothing was noticed the first five days, the temperature fluctuated regularly between 38 and 39°C., the appetite being good. During the night between the 5th and 6th day, there was a change noticeable, the temperature raised from 38.4°C to 40°C, the appetite almost entirely ceased, but in spite of this strong reaction, the animal remained strong and lively, the urine being of the normal color. On July 22 the temperature raised to 40.7°C, the animal refused to partake of any food, and was dull, the urine slightly colored, but the blood contained only a few hæmatozoons. On the 23d the temperature raised to 41.2°C, the animal extremely depressed, absolutely refusing all food. The urine was red and became brown on exposure to air; the examination of the blood proved the presence of numerous piriform hæmatozoons. The counting of the red blood corpuscles, which was undertaken by Nocard, proved at 2 P. M. 3,200,000, being only about half of the normal number. At 6 P.M. there were only 1,100,000. Concluding from other test animals which manifested the same symptoms as this, it was thought by the members of the commission that the animal would die the same night. Unexpectedly the condition remained the same on the 24th. The animal still refusing food, was constipated, the muzzle was very dry, the urine darker than the day before, and only 370,000 red blood corpuscles were found in a cubic millimeter of blood. The blood contained less parasites, they were not piriform, but more rounded, while the temperature dropped almost 3°C., from 41.2°C. to 38.3°C. On July 25 the animal was considerably better, the temperature being 38.4°C., the muzzle was fresh, the animal drank, and searched for food. The animal seemed to be on the road to recovery. As the natural disease which causes immense losses in Argentina and also in the United States, does not in every case terminate fatally, the recovery of the test animal should not be surprising. But the greatest importance is, that the experiments proved without doubt the absolute effect of the inoculation discovered by Lignière. The two inoculated animals were not in the slightest degree affected, while the control animal suffered from a severe attack, so much so that a fatal termination was expected. In a practical way these experiments were very satisfactory. Now, we are anxious to see Mr. Lignière's publications in regard to the procedures of the inoculations, and, furthermore, the preparation of the immunizing serum and how long the inoculated animals remain immune.

THE USE OF MALLEIN IN THE DIAGNOSIS OF GLANDERS [*Dr. Borella Alete*].—During the autopsy of a horse which died from colic, lesions on various parts were noticed, similar to the pathological product of glanders. The diseased parts of the organs were sent to Prof. Piana, who confirmed the diagnosis of glanders. Consequently 9 suspicious cases from the same stable were condemned. The author decided to try the mallein test on these cases, and the results of his experiments are as follows:

Horse. No.	Average temp. of the last two days previous to injection.	Highest temp. 20 hours after injection.	Difference between] the two temp.
I.	37.1	38.4	1.3
II.	38.5	39.1	0.6
III.	37.1	38.9	1.8
IV.	37.6	39.0	1.4
V.	37.6	39.2	1.6
VI.	37.4	40.0	2.6
VII.	37.3	39.3	2.0
VIII.	37.5	39.8	2.3
IX.	37.1	38.5	1.4

As the result of this, the author declared horses No. VI, VII and VIII to be affected with glanders, No. III and V as very suspicious, No. I, IV and IX as suspicious, and the horse No. II not suspicious. All the horses were destroyed at the slaughter-house of Mantua, and it was found that the horse No. VII had glandular nodules in the lung (lung glanders), while none of the other horses showed the slightest sign of the disease. This is another instance where it is proved that we cannot rely upon mallein as a certainty in the diagnosis of glanders.—(*Clinica Vet.*)

Thrombosis of the Humeral Artery [*Wollman*].—A nine-year-old horse showing no peculiarities while standing or walking, when trotted for about 15 minutes showed a lameness on the off fore leg, which gradually became so bad that the animal was unable to lift the leg, and dragged it with the toe on the ground; the lameness, indeed, was so pronounced that the horse threatened at any time to break down. The entire body was covered with perspiration, with the exception of the right shoulder down to the forearm, which was dry. The respiration was very much accelerated. The extensors of the forearm showed a peculiar trembling motion. The pulsation of the plantar artery was very weak. After ten minutes rest all these symptoms would disappear, leaving only a slight weakness. As this condition always came on in the same manner a diagnosis of "thrombosis of the humeral artery" was made. The owner requesting treatment, slight exercise was given twice a day to the horse, and iodide of potassium was prescribed in the drinking water. Fourteen days after beginning this treatment the horse became blind in both eyes. Examination proved the contents of the eyes to be of a normal character; no signs of inflammation were present. At the same time, the disturbance in locomotion got to be so bad that the animal could hardly walk to the place to be destroyed. When an autopsy was performed, a thrombus 17 cm. long was found in the right humeral artery, which reached into the brachial artery. The cause of the sudden blindness could not be explained.—(*Ztschr. f. Vet.*)

OBITUARY.

DEATH OF PRINCIPAL WILLIAMS.

The profession of veterinary medicine sustained the loss of a distinguished member on November 12, when William Williams, Principal of the New Veterinary College, Edinburgh, succumbed to heart failure, having suffered from bronchitis for some time, though there were no fears of his early demise. To English speaking veterinarians throughout the world his was a most familiar name, rendered so principally through his two volumes: "The Theory and Practice of Veterinary Medicine" and "The Theory and Practice of Veterinary Surgery," they having been accepted as standard text-books in all colleges of veterinary medicine where the language is spoken. His fame was added to through his editorship of the *Veterinary Journal*, to which he succeeded upon the retirement of George Fleming. First associated with the Dick Veterinary College he became involved in a serious controversy with the trustees, which resulted in his withdrawal and the establishing of the school in Leith Walk, in 1872, which has been presided over by him ever since. He was born in 1832, in Wales, graduated from the Dick College about 1858, winning the gold medal of the Highland Society in competition with Principal McCall, of the Glasgow Veterinary College; Principal Law, of the New York State Veterinary College, and Mr. Field, of London. He was an honorary member of almost every veterinary association in Great Britain, and held many other posts of honor, having been a councilman of the city of Edinburgh for eight years. His son, W. Owens Williams, who has been his father's partner for a number of years has succeeded to Principalship of the New College, and as editor of the *Veterinary Journal.*

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
of the McKillip Veterinary College, Chicago, Ill.

CASTRATION OF CRYPTORCHIDS.

Cryptorchid is a term applied to mammalia that have one or both testicles hidden or concealed in some of the anatomical structures through which they pass on their descent to the scrotum. During early fœtal life the testicle floats around in the abdominal cavity, suspended from the sublumbar region by a fold of peritoneum and attached to the scrotum by a long cord (*gubernaculum testes*), which guides it on its descent through the inguinal canal into the scrotum. In most mammalia it descends during intra-uterine life, but in some instances it may remain in the inguinal canal for some time after birth. In solipeds it is not an uncommon thing to find this condition (*pseudo-cryptorchidism*) exist for a period of six months or a year after birth. The true cause which retards or arrests the testicle on its way to the scrotum has never been satisfactorily explained, and is a subject that does not come within the domain of surgery, but one that can be considered in embryology or teratology; the location of the testicle, however, is of more importance, because it gives rise to an important classification of cryptorchidism. The terms which are applied to the condition are enorchid, anorchid, cryptorchid and ridgling, the last being the one used by the layman. The origin of the word "ridgling" is uncertain, but may be considered as a modification of the word "*ridgel*," which is of Scottish origin. Anorchid is a term that has been improperly applied to the condition; considering it etymologically it should be applied only to animals that have had one or both testicles removed. Enorchid is more applicable to the condition than either of the above mentioned terms; cryptorchid is the one most generally used by the profession in referring to the condition.

The classification of cryptorchids varies according to the object in view, they may be grouped according to the location, development and condition of the testicle. For our purpose we shall use the classification by which the location of the testicle is designated. Farmer Miles has numbered them from one to five; the first three refer to the location, and the remaining two refer to pathological conditions of the testicle. The following classification of the cryptorchids is the one that we will use:

1. Intra-abdominal.
2. Extra-abdominal.
   (*a*) Supra-inguinal.
   (*b*) Inter-inguinal.
   (*c*) Supra-scrotal.

1. *Intra-abdominal Cryptorchids* are those that have one or both testicles in the abdominal cavity.

2. *Extra-abdominal Cryptorchids* are those that have one or both testicles in the inguinal canal, somewhere between the internal and external inguinal rings. The inguinal canal being from 15 cm. to 20 cm. in length, gives rise to a number of secondary classifications. Some are located near the internal inguinal ring (*supra-inguinal*) and sometimes only partly in the ring; others are in the canal between the rings (*inter-inguinal*); and occasionally some are classed as cryptorchids that have the testicle in the external inguinal ring (*supra-scrotal*) and above the scrotum.

Each of the above cryptorchids can be classed according to their development of the testicle.

1. Orchidauxe.
2. Orchidion.
3. Orchidatonia.

1. *Orchidauxe* is a condition frequently observed in intra-abdominal cryptorchids, which generally results from diseases, such as tumors, cysts or œdema.

2. *Orchidion* is a small atrophied testicle. This condition of the testicle is usually found when it is located in the inguinal canal.

3. *Orchidatonia.*—This condition is marked by a loss of tonicity of the testicle which may result from œdema, cysts or any degeneration of the body of the glands; and is frequently observed in cryptorchids.

Classification of pathological lesions common to cryptorchids:

1. Orchidospongeoma.
2. Orchidoncus.
3. Varicocele.
4. Œdema.
5. Hydrocele.
6. Cysts.

1. *Orchidospongeoma* is a tubercular tumefaction of the testicle, a condition not common in lower animals, but one that might be found in the bovine and porcine species. We have

noticed a condition in a cryptorchid hog that had the appearance of being tubercular, but the inspection was not carefully made and could not verify that our conclusion was correct.

2. *Orchidoncus.*—Tumors located in the testicle may be carcinomatous or sarcomatous, and to distinguish between them is generally impossible without a microscopic examination. Fibroma are sometimes found in intra-abdominal testes.

3. *Varicocele.*—This is a condition frequently found in cryptorchids, but is not confined to this class of males.

4. *Œdema* is a condition that is often found in intra-abdominal testicles. When in this condition they are generally enlarged and add much to the difficulty in removing them through the inguinal canal.

5. *Hydrocele* is a condition that occurs occasionally in extra-abdominal cryptorchids, and generally causes no inconvenience in castration.

6. *Cysts* are frequently found involving the whole or part of the testicle. When located in the body of the testicle it may replace the greater part of the parenchyma. Some of them are filled with a clear fluid, while others contain a gelatinous connective tissue. This condition is generally found in intra-abdominal cryptorchids and greatly interferes with castration.

Surgical Anatomy of the Inguinal Region of Solipeds.—The inguinal canal includes the space on each side of a raphé extending from the perineum to the umbilical region; superficially it presents the scrotum and sheath; the prepubian tendon, which is from 8 to 10 cm. wide, extends forward from the brim of the pubis, and forms the internal boundary of the external inguinal ring; an aponeurotic portion of the tendon extending to the femoral fascia forms the antero-external boundary of the ring; and Poupart's ligament forms the posterior boundary. The external inguinal rings, which are on each side of the median line, can easily be located by manipulation. The inguinal canal extends upward and outward from the external inguinal ring, along the anterior face of Poupart's ligament, to the internal inguinal ring. The length of the canal varies from 15 to 25 cm. In a small horse it is about 15 cm. long; in a medium sized horse, about 20; and in a large one it is about 25 cm. The arteries to be avoided are the external pudic, and the subcutaneous abdominal, which is a branch of the external pudic and is located along the sheath.

Preparatory Treatment.—To properly prepare the patient for the operation the alimentary canal should be emptied by the administration of a cathartic ; he should receive no food during the last 24 hours, and no water during the last 12 hours prior to the operation.

Restraints.—To carefully cast and properly secure the patient it is necessary to have good assistants. The operator should have a good practical casting apparatus, and a good twitch, and see that the animal has a good halter. A good, clean and suitable place must be prepared under the direction of the operator. The success of the operation will depend much upon the restraint applied after the patient is cast. The hind legs should be flexed upon the hock and spread as much as possible, and when convenient the posterior part of the body should be elevated, which will reduce the pressure of the viscera in the pelvic cavity.

Operation.—Each step should be made with every aseptic precaution possible; the instruments should be sterilized and kept in a receptacle, immersed in an antiseptic solution (strong);

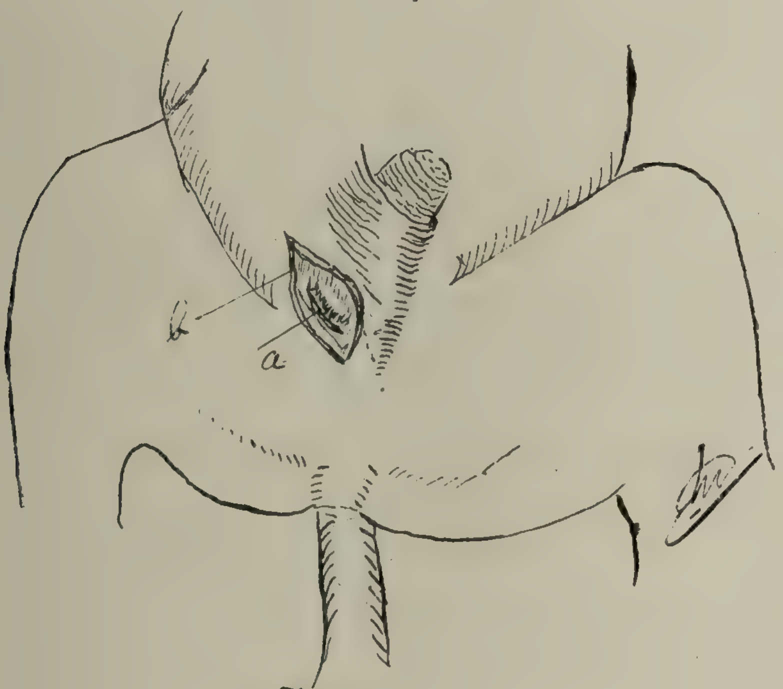


Fig. 38.

a, External inguinal ring ; *b*, incision.

the operator's hands should be thoroughly cleaned, and before inserting them into the canal they should be washed or covered with some aseptic lubricant.

Before beginning the operation the animal should be given a general anæsthetic ; if this cannot be done, a large dose of chloral hydrate should be administered at least one-half hour before the operation ; and, when these preliminary steps have been taken, the patient should be placed in the most convenient position, and an incision made through the skin and subcutaneous tissue, along the transverse axis of the external inguinal ring (Fig. 38.) The incision should be about 10 cm. long, avoiding the external pudic artery and the subcutaneous abdominal artery and vein.

The external ring is opened by breaking through the connective tissue; if the testicle is on the right side use the right hand (on the left side use the left hand), and insert it into the external ring with the first two fingers extended (Fig. 39), and with gentle pressure rotate it, occasionally spread them (the fingers) apart like a glove stretcher, keeping close to Poupart's ligament and in the subcutaneous tissue, until you reach the commissure formed by Poupart's ligament and the internal oblique muscle ("internal inguinal ring"), then break through the peritoneum with a sudden thrust. If possible only two fingers should be inserted into the abdominal cavity and an attempt made to secure the vas deferens and draw the testicle to the opening made in the peritoneum; if the vas deferens cannot be found, the entire hand must be inserted into the abdominal cavity and a search made for the vas deferens and the testicle; if it cannot be found, the other hand should be placed into the rectum to press the viscera in the direction of the hand that is in the abdominal cavity. When the vas deferens or testicle is found, the operator must improvise the best and most simple way to get the testicle into the inguinal canal. When the testicle is in the inguinal canal, it should be brought to the surface, or as near to it as possible, and removed with an emasculator or ecraseur.

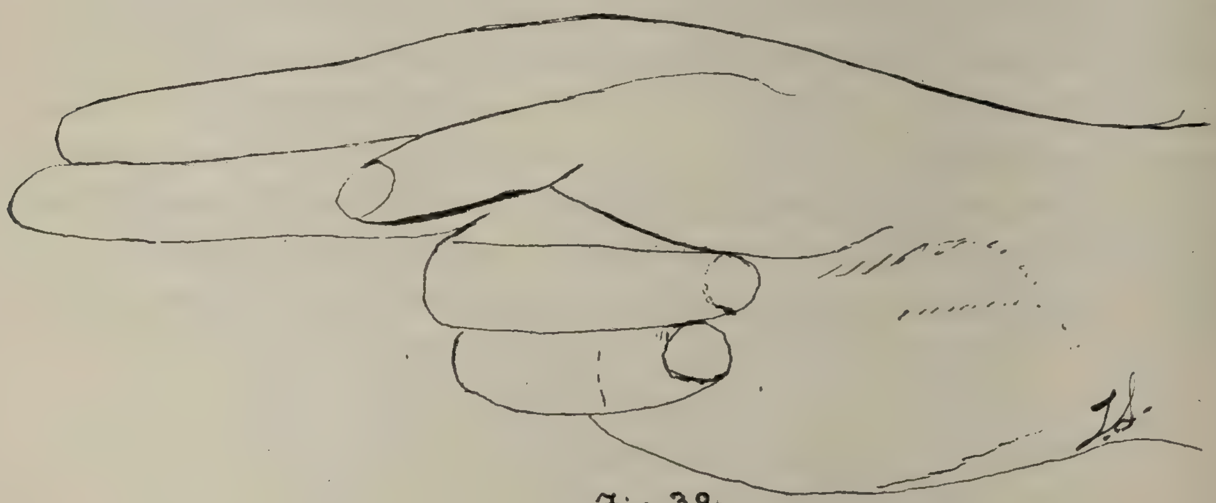


Fig. 39.

Pathological conditions of intra-abdominal cryptorchids may cause some inconvenience; but the greater number of cryptorchids are extra-abdominal and operators are only occasionally confronted with such conditions; a little care in determining the proper course to adopt in such cases adds to the success, and it is impossible to lay out a course that will be practical in every instance. After the operation the wound should be irrigated and carefully examined, and if the intestine does not extend into the inguinal canal he should be untied and placed into a clean comfortable stall.

After-care.—For the first four or five days the wound should be opened morning and evening and washed with soap and hot water. If any indications of sepsis are noticed the wound should be explored and carefully washed with an antiseptic solution. Moderate exercise should be given once or twice a day, and the feed used must be of good quality, given in small quantity for the first two or three days.

SURGICAL ITEMS.

How many of us have sat by the hour at the feet of some learned professor and seen wonderfully skilled operations performed, and listened to his words of wisdom in the surgical clinics; yet many of us could never consider such work worthy of much commendation while the poor brute groaned and fought from the acute pain of such operations as major punctured sole operations, or long, deep incisions in fistulous withers, or the frightful pain of neurectomy, when the near sighted operator would pinch the digital nerve with his forceps to distinguish it from the too neighborly artery; and all this cruelty with plenty of chloroform, ether and cocaine at hand. * * * The highest ambition of any surgeon should be to relieve pain and not to cause it.—(*Dr. J. P. Turner*, *A. V. M. A. Report*, *1899.*)

Tetanus.—While all fair-minded, observant veterinarians have failed to note any appreciable benefit from the use of tetanus antitoxin in the treatment of tetanus, the same men never fail to laud this same product in the highest terms as a preventive. That tetanus antitoxin does prevent tetanus is no longer doubted by those who have given it a fair unbiased trial; so the time has now come when all up-to-date veterinarians, especially those practicing in districts where tetanus is prevalent, should consider their equipment incomplete without, at least, a small quantity of this serum within their reach at all times. It is very evident that within a comparatively short time the veterinarian who neglects to immunize a patient that contracts a punctured wound will be called to account for the omission should tetanus result. The cost, which is already nominal, will be greatly reduced when it comes into more general use.—(*L. A. M.*)

Will the *sub-arachnoidean injection of cocaine*, which the human surgeons are rapidly adopting to produce anæsthesia (analgesia more properly speaking) of the abdomen and lower extremities, ever be introduced into veterinary surgery? According to recent reports from such eminent clinicians as Murphy and Senn, it is very evident that general anæsthesia with chloroform and ether, for all abdominal, pelvic and lower extremity operations, will soon be universally supplanted by the injection of a weak solution of cocaine upon the sensory columns of the lumbar cord. The effect which occurs shortly after the injection and lasts for more than an hour is that of complete suspension of sensibility, while the tactile sense and motion remain unaltered. The patient suffers from none of the unpleasant nor dangerous effects of ether and chloroform, feels no pain, and rapidly recovers the suspended sensibility. Certain salient points in the technique of its application may forever preclude its introduction into veterinary surgery, yet in view of its many indications we should try to overcome the obstacles. A prerequisite of the procedure is that the fluid be injected beneath the arachnoid membrane. Whether we will ever be able to accomplish this delicate feat is a matter for future discussion.—(*L. A. M.*)

The death of Professor Williams, principal of the New Veterinary College, Edinburgh, which occurred November 12th, following a brief illness, is a serious loss to the profession. His untiring efforts directed to the interest, emergencies and advancement of the veterinary profession, contributed much to his fame; his works on veterinary topics have made him a lasting reputation; and, we regret that one so useful to our cause, and so efficient in directing his energies, should sever his earthly relations while still in the acme of his devotion. As veterinary science progresses, his effort may be buried in the débris of other energies employed in the same direction; but, in obedience to a natural consequence, it will always be to the profession, "The principal stone of the corner," and the efforts of others will remain to be but individual marks of the craft inscribed upon the surface.—(*E. M.*)

THE ARMY VETERINARY BILL.

DISCUSSION IN THE HOUSE PRIOR TO ITS PASSAGE—MESSRS. HULL AND MONDELL ITS WORST OPPONENTS—VALIANTLY CHAMPIONED BY MESSRS. BINGHAM, SULZER, ADAMS, AND OTHERS—THE VOTE: AYES, 80; NAYS, 72.

[*From the Congressional Record, Dec. 6, 1900.*]

Mr. Bingham. I desire to offer as an amendment a provision which appears on pages 7 and 8 of the present bill, being paragraphs of the Senate bill which have been struck out in the preparation of this bill. I see in the report no statement of reasons why the Veterinary Corps, as established by the Senate bill, has been excluded entirely from this bill. I am desirous, however, to have an expression of the judgment of the House upon this question. I therefore offer as an amendment the provision beginning on line 21, page 7, and covering the whole of page 8, relating to the Veterinary Corps.

Mr. Hull. I object to going back now. We had better finish the bill.

Mr. Bingham. There is no going back.

Mr. Hull. We are considering the bill by sections, and we have passed over those sections which the gentleman now proposes to take up.

Mr. Bingham. We have not passed over these sections. They are parts of the Senate bill which have been excluded from this bill.

Mr. Hull. We have passed over those sections. If the gentleman desires to amend our bill by putting in those provisions, he can do that, I suppose, when we get through regularly with the bill.

Mr. Bingham. Why should not these provisions go in now as independent paragraphs the same as any other amendment?

Mr. Hull. Unless the gentleman proposes to offer his amendment to follow the provision in regard to the Nurse Corps, I object to going back, because I am anxious to get through with the bill.

Mr. Bingham. I cannot understand why there is any going back. The provisions which I offer have never been read. Therefore there is no going back. I claim that this amendment is fairly eligible for position in any part of this bill.

Mr. Hull. But the amendment, in my judgment, is not germane to the part of the bill we are considering. The gentleman, if he wants to put in those provisions, taken from a part of the bill which we have gone over, ought to wait until we have completed the consideration of the subsequent portions of the bill. Unless we adhere to the regular order of proceeding we shall be constantly jumping backward and forward, considering propositions having no relevancy to the matter under consideration.

Mr. Bingham. There is no purpose to jump forward or backward. We have already considered paragraphs pertaining to the Surgeon-General's establishment; we have just concluded a paragraph pertaining to the nurses' establishment. The amendment I desire to offer has direct relation to those two paragraphs, and is consistent at this point as a part of the bill.

The Chairman. The gentleman from Pennsylvania proposes to introduce a new paragraph at this point. Is that the proposition?

Mr. Bingham. I simply ask that an additional paragraph, covering the wording of the Senate bill, may be considered at this time.

The Chairman. The Chair thinks that is the order. The Clerk will report the gentleman's amendment.

The Clerk read as follows:

After line 14, page 23, insert the following:

"SEC. 20. That the Veterinary Corps shall consist of—

"A chief veterinarian with the rank, pay, and allowances of a colonel, United States Army.

"An assistant chief veterinarian with the rank, pay, and allowances of a major, United States Army, to be promoted in 1905, after competitive satisfactory examination, from the grade of veterinarian and captain.

"Four veterinarians with the rank, pay, and allowances of a captain of cavalry, to be promoted in 1903, after competitive satisfactory examination, from the grade of assistant veterinarian and first lieutenant.

"Ten assistant veterinarians with the rank, pay, and allowances of a first lieutenant of cavalry, to be promoted, after a satisfactory examination, from the grade of assistant veterinarian and second lieutenant after one year's service in this grade.

"Twenty assistant veterinarians with the rank, pay, and allowances of a second lieutenant of cavalry, to be appointed after satisfactory examination: *Provided*, That these twenty positions shall include the veterinarians, first class, provided for in the act of March 2, 1899, who have passed satisfactory examinations, and also the six veterinarians, second class, who are now employed in the Army under said act of March 2, 1899.

"All rules and regulations governing the Veterinary Corps shall be made by the Secretary of War, and the chief veterinarian shall report directly to that officer.

"For pay of officers of the Veterinary Corps, $33,500."

Mr. Bingham. Mr. Chairman, I fully recognize that the amendment I have submitted (being word for word a part of the Senate bill as it came to the House) would go to conference as soon as this bill passes, along with the other paragraphs of the Senate bill, and would be subject to consideration there. I think, however, at the same time, that this subject has been gone over so thoroughly that there is a conviction on the part of the House of the wisdom and necessity of the establishment of this additional branch of service, so as to be a part of the reorganization of the Army.

This proposition, Mr. Chairman, was carefully considered in the Senate, a great deal of testimony was taken in reference to it, and it passed that body and became a part of the bill which was transmitted to the House. There is nothing whatever in the report of the House Committee on Military Affairs, as I read it, that in any wise refers to crossing out or wiping out the paragraph in the Senate bill to which reference is made in the amendment. We have not been given any information upon that subject.

In the brief I hold in my hand, prepared by Senator Kenney, appears this amendment. The statement is made that the entire cost, under the amendment, will not exceed $6500. It is asserted in this brief that that is the entire cost over and above the cost of the civil employees now engaged in that service. It is also alleged that this will be more than compensated for by the organization of this veterinary corps which the amendment proposes.

Under the rulings of the Department, as well as the judicial decisions, the present force of the veterinary surgeons is declared to be a force of civilian employees—so rated and so paid—$75 a month to one class and $125 a month to another. They hold no commissions and have no commissioned relations with the other branches of the service. It is claimed in this proposition, which has had the indorsement of the most efficient and careful officers of the Army, General Merritt, General Brooke, Major-General Wilson, and other high officers, as well as the approval of President McKinley, General Miles, Commander-in-chief of the Army, Quartermaster-General Ludington, and others high in rank, that the proposition is one for the best interest of the service, and that under the proposed organization or reorganization of the Army such a proposition is desirable and necessary. I am informed that, as the Army will be reorganized under the provisions of this bill, if it becomes a law, there will be upward of 25,000 animals to be cared for. The cavalry, the artillery, and the necessary transportation required for the Quartermaster's Department will involve the care of this large number of animals.

Mr. Jett. Let me ask the gentleman from Pennsylvania a question for information.

Mr. Bingham. Certainly.

Mr. Jett. I would like to ask if the amendment that the gentleman offers is not a section of the bill that was before the Senate and passed by that body and came here during the last session of the House for our consideration?

Mr. Bingham. Absolutely the same, word for word. I have simply torn out the printed sheet of the original bill and presented it here as an amendment.

Mr. Chairman, this matter is so thoroughly understood by the House that I have no desire to take time to discuss it. I have shown what the increase of expenditures will be. I have shown that it would be a little in excess of $6000. Certainly such an organization, indorsed by the leading officers of the service, deserves consideration at our hands, and I think it but fair to say that by the action we now take here the House will either make the paragraph a part of the bill agreed to by both the Houses or leave it as a paragraph to be settled in conference.

[Here the hammer fell.]

Mr. Hull. Mr. Chairman, I sincerely hope that the amendment of the gentleman from Pennsylvania will not prevail. The Committee on Military Affairs took the Senate bill and struck from it all after the enacting clause and inserted the bill which is now reported here to the House and recommended by the committee. Now, if we take a part of the bill here and there and insert it in the House proposition, you reduce the power of the House to enforce its own will just to that extent; and it seems to me that the position of veterinary surgeon should stand with the other provisions of the Senate bill and let it go to conference as a whole.

Further than that, Mr. Chairman, I am strongly in favor of commissioned ranks for the veterinary corps of the Army. I believe they ought to have commissioned rank. As to whether we want to create a new corps, a new bureau in the Army, is another and entirely different question, that ought to be thought over very carefully before this House shall adopt it. I do not believe we ought to put it in this bill. I will say, Mr. Chairman, at the request of one of my friends here, that the veterinary corps has commissioned rank in all the other armies of the world.

Mr. Bingham. That is true.

Mr. Steele. Assimilated rank.

Mr. Hull. Well, that is true of the army surgeons in other armies also. They do not have rank for their doctors there. It is only assimilated rank for them, too.

Mr. Sulzer. Mr. Chairman, just a few words with regard to the amendment offered by the gentleman from Pennsylvania [Mr. Bingham]. As a member of the Committee on Military Affairs, familiar with this subject, I concur in all that the gentleman has said. This amendment for a Veterinary Corps should be incorporated into this bill now. It should not be eliminated here and allowed to go to conference. There is no doubt in the world but what this Veterinary Corps is one of the most important at the present time in the Army. As the gentleman from Pennsylvania [Mr. Bingham] has truly said, there will be over 25,000 animals in the Army if this bill becomes a law, and as a friend of the horse I want to see this House adopt it. I trust it will. It is right. There ought to be veterinary surgeons to look after them. The Veterinary Corps is one of the most important branches in relation to the army of to-day, and this amendment should be adopted. To defeat it now will probably mean its permanent defeat. I appeal for fairness in the matter in order that our Army animals may be protected.

Mr. Gaines. Why did not the military committee report the provision in the bill which they brought in here?

Mr. Sulzer. The committee should have reported it.

Mr. Gaines. Why did they not report it?

Mr. Sulzer. Because the committee struck out the entire Senate bill and put in the War Department bill without any amendments whatever. This amendment was in the Senate bill passed last session.

Mr. Gaines. Why did they not leave that provision of the Senate bill in the bill which they brought in here?

Mr. Sulzer. They should have done so.

Mr. Gaines. Did they give any reasons for their failure to do so?

Mr. Sulzer. You will have to ask the chairman of the committee about that. The minority of the committee had nothing to do with it; but as a member of the minority, and speaking for the veterinary surgeons of this country, and for the best interests of the animals that will be in the Army, I think this amendment should be adopted, and I hope every friend of the horse will vote for it.

Mr. Hay. Mr. Chairman, I am sorry that I can not agree with the gentleman from New York [Mr. Sulzer], because after a careful consideration of the provision contained in the amendment proposed by the gentleman from Pennsylvania [Mr. Bingham], after hearing all the evidence which was adduced before us, I came to the conclusion that it would not be for the benefit of the surgeons to have the Veterinary Corps established in the form in which it is provided in the Senate bill.

In the first place it creates a new bureau down here in the War Department. It creates a new staff bureau, and we may expect that bureau to be built up as other bureaus have been, at considerable cost. Moreover, the present Veterinary Corps, if they are given rank such as was suggested by the chairman of the committee [Mr. Hull], should be satisfied. That is all they ought to ask for. They have worked very well so far. They have done good service up to this time, and the animals of the Army have not suffered, so far as I have been able to ascertain. Therefore I do not see why we should create a new bureau in the War Department, at a considerable expense, when there is no necessity for it, and when these veterinary surgeons can have the rank which will give them the authority they now say is necessary in order to enable them to carry on their work in the Army. I hope, therefore, that the committee will vote down the amendment.

Mr. Gaines. What does the bill provide with reference to veterinary surgeons?

Mr. Hay. The bill does not provide anything with reference to veterinary surgeons, as it now stands; but, as I understand it, the probability is that in conference these surgeons will be given the rank of second lieutenants of cavalry.

Mr. Gaines. The bill does provide for veterinary surgeons.

Mr. Hay. Oh, yes; it provides for the employment of them now, but it does not provide for a bureau here.

Mr. Adams. Mr. Chairman, I ask the attention of the House for one minute while I submit some reasons why this amendment should be inserted in this bill.

This represents the progress that is taking place in our country, both in science and in army improvement. In the old days the farriers were sufficient to take care of the live stock of the Army, but with the progress of science now every man who practices the veterinary calling must have a diploma from a university. A man who is educated to that point should be raised above the farrier, and is entitled to the recognition of rank in the Army of the United States. If these men are to be established as a corps, they should be organized as such if you are to have efficiency throughout the Army, $2,000,000 representing the value of the live stock in the United States Army to-day. It is of sufficient value to warrant an additional $6-500 for their care and promotion.

Not only that; I would call attention to the fact that every civilized nation to-day has its veterinary corps to examine animals purchased. England, in the war with South Africa, sent veterinary surgeons to this country, when they were buying live stock, and saved hundreds of thousands of dollars in the purchase of those animals by means of careful inspection. There is another point I would earnestly press upon the House. One of the few disagreeable things that we want to forget about is the spoiled meat served to our gallant troops that were fighting in the armies of this country. If we had had this corps, that meat would all be inspected, and there could no such scandal take place.

It is seldom, Mr. Chairman, that I find myself in opposition to the committee. I can not agree with the suggestion of the chairman of the committee that this matter should go over so that it could be dealt with in conference with the Senate. If this House believes in the measure, they should vote for it now and put it in the bill. This is the proper place to put it in and let it be established, and then it is beyond peradventure and can not be traded off for any other proposition, and will be in the bill for the benefit of the Army and economy to the Government. It will be a recognition of a profession which is rising to-day; and all the veterinary schools and that great profession throughout our country are solidly behind this measure. I hope the House will act now and not trust to chance. A wise man never trusts to chance if he can get what he wants in hand. Vote to put this in as the Senate had it in the bill and it places this question beyond peradventure.

Mr. Steele. Does not the gentleman say that this bureau is to cost $6500?

Mr. Adams. Additional.

Mr. Steele. The cost is given here as $33,500.

Mr. Adams. That gives the entire corps. This will be an additional amount of $6,500.

Mr. Mondell. Mr. Chairman, I hope this amendment will not be adopted by the House at this or any subsequent time. I do not believe it is necessary for the best interest of the service; neither do I believe it would be wise to commission horse doctors as officers of the United States Army. It has been stated here that the armies of all civilized countries have a veterinary corps, with rank. It should have been stated "assimilated rank." Assimilated gives the pay, but not the honor or the title of the rank. There is not an army in the world that has a veterinary corps ranking with the officers of the line. It is not necessary, in my opinion, for the best interest of the service that the Veterinary Corps of the United States Army should have rank.

Mr. Butler. Will the gentlemen allow me to ask him a question?

Mr. Mondell. Certainly.

Mr. Butler. Why should we not give the horse doctor rank the same as we give the medical doctor?

Mr. Mondell. I think there is some difference between a man and a horse.

Mr. Butler. One is the doctor for the man and the other the doctor for the horse.

Mr. Mondell. I think there is a difference between doctoring one of our soldiers and doctoring an army mule.

Mr. Butler. Are they not both educated men, and ought not both to be men of intelligence?

Mr. Mondell. The fact that a veterinary might be an educated man is no reason why the horse doctor should be commissioned. An army surgeon in time of action is often necessarily under fire. If the gentleman will recollect the occurrences of the Santiago campaign, he will remember that the surgeons of the army the most of the time during the operations before Santiago were under fire quite as much as some of the men in the advance. The horse doctor, I do not imagine, under any circumstances, would ever be under fire. I see no reason why a horse doctor, any more than a wagoner, a blacksmith, or other men connected with the Army in various capacities, should also receive a commission.

Mr. Grosvenor. Will the gentleman from Wyoming allow me to make a suggestion? The surgeon comes in immediate contact with the men about him who are engaged in carrying men on the stretchers to the hospitals, and furthermore, he comes in contact with other enlisted men who are employed with the men in the hospital, and it is necessary to give him some rank in order that he may discharge his duties and assert the difference in rank between himself and the enlisted men. That is not true in the case of the veterinary surgeon who goes to the cavalry stables to doctor their horses. You might as well give rank to the men who curry the colonel's horse as to confer rank upon the veterinary surgeons.

Mr. Mondell. I agree with the gentleman from Ohio in all that he says, and I thank him for his remarks. The surgeon in the Army is not only the physician who attends to the wounds and the ailments of the soldiers, but he is also the one who goes among the wounded in the hospital and on the field and cheers and encourages them, and he shares with them largely their privations and their dangers. He does not belong to the same class as the wagoners and the farriers.

It has been stated here that the change would only mean an additional expense of $6000. Possibly so at the time of the passage of the bill, but it means a constantly increasing corps of officers who in the course of time are to go to swell the retired list, and, instead of $6000 annual expenditure, in a short time it would add a very much larger sum. If we are not able to secure the services of good veterinary surgeons at the present prices paid, let us pay better prices for our veterinary surgeons, but never give horse doctors, honorable though their calling is, rank and authority with the fighting men of the American Army.

Mr. Fitzgerald of Massachusetts. May I ask the gentleman a question?

The Chairman. The time of the gentleman from Wyoming has expired.

Mr. Fitzgerald of Massachusetts. I want to say that he referred to the Santiago campaign, and undertook to show to the House that there was a difference between the doctor who doctors the soldiers and one who doctors the army mule. I want to say, as an incident of that campaign, that it developed that a horse doctor, Dr. Heidenkooper, was assigned to the treatment of soldiers in the hospital, so I do not think that that point amounts to much.

Mr. Bingham. Mr. Chairman, the gentleman who has charge of this bill states that he does not desire to mar the integrity and unity of his bill for the reason that they have crossed out all of the Senate bill and submitted this as a substitute. He doubtless is as familiar as myself with what goes on in the conference committee. I have had some experience, in common with other gentlemen in the House, and it is simply that when a bill is presented, like this bill, a clean wipe-out, a clean submission of something new, that it comes to a mere barter and trade in conference—"if you will give us that, we will give you this," and you come into the House with a mongrel bill. So far as this bill is concerned I do not want it to have that form or shape. I want this committee to determine the paragraph one way or another and not subject it to rejection because some other paragraph may be admitted.

One word with reference to the statement of the gentleman as to the horse doctor, as he designated him, not being a party to field action or to the battle. Granted. The surgeon is only thus detailed for that special work; others are back in the hospital. The officers of the Ordnance Corps, a large and one of the most intellectual corps of the service, are not in action. It is only occasionally that an officer of the Engineer Corps of the Army is detailed to be in a position under fire.

Mr. Butler. How about the paymasters?

Mr. Bingham. The paymasters are never in action. That does not not make for or against the veterinary surgeon or lessen their usefulness.

As to the objection of the gentleman on the other side who says that the establishment will create a bureau in Washington. The whole cost of these surgeons will be $33,500, an increase simply of $6500 over the current law. If any bureau was ever established in Washington, they could have the supervision of only $33,500. Therefore, I contend that this criticism does not bring any strength against the proposition contained in the Senate bill.

Mr. Chairman, I ask permission to insert at the end of my remarks a "brief in the House of Representatives May 5, 1900, of facts in support of Senator Kenna's amendment to the Army reorganization bill, which passed the Senate and goes to the House of Representatives for concurrence."

The Chairman. Without objection the request of the gentleman from Pennsylvania will be granted. [After a pause.] The Chair hears no objection.

The brief referred to by Mr. Bingham is as follows:

Brief (S. 4300. In the House of Representatives, May 5, 1900) of facts in support of Senator Kenney's amendment to the Army reorganization bill, which has passed the Senate and now goes to the House of Representatives for concurrence.

Senator Kenney's amendment to the Army reorganization bill provides for the establishment of an organized veterinary service, with reputable officers, whose education and competency is insured by rigid examination ; to replace the present system of employment of an unorganized class of individual civilians, with no rank, no future, no responsibility, and no official position.

The United States Army is absolutely deficient in a proper veterinary service, which exists in the army of every other civilized country in the world. The present system in the United States Army has less method in it than that found needful in any large contractor's stable or stock farm in the country.

ECONOMY.

The entire cost under the amendment is only $6500 over the present cost of civilian employees under the present system, and will be more than compensated for by the economy resulting from an organized veterinary corps.

The establishment of an organized veterinary service—

To give proper instruction in hippology, inspection of forage, stable hygiene, and farriery, to officers, cadets, non-commissioned officers, and farriers, at our military schools and large posts ;

To furnish expert veterinarians for service as members on boards of purchase of remounts ;

To furnish qualified inspectors of live stock and dressed meat for our soldiers' rations [there is not a qualified meat-inspection service in the United States Army];

To furnish practical services in prevention and cure of diseases—

is needed, both on the ground of economy, for the efficiency of the Army, and for the health of our soldiers.

The letters, copies of which have been furnished, from Major-General Merritt, Major-General Brooke, Major-General Wilson, and numerous others of the higher officers of the Army indorse such an organization.

The establishment of such an organization has had the approval of the President, William McKinley.

The General Commanding the Army, Major-General Miles, and the Quartermaster-General, Brigadier-General Ludington strongly approve and favor the amendment.

(Committee on Army legislation, American Veterinary Medical Association, Rush S. Huidekoper, secretary, Washington, May 4, 1900.)

Mr. Gaines. I should like to ask the gentleman from Pennsylvania if the veterinary surgeons contemplated by this amendment are to be graduates of a school or college.

Mr. Bingham. The surgeons employed under this corps will be subject to the directions of the Secretary of War, who will make regulations as to their credentials.

Mr. Gaines. Does the gentleman give that as one reason why this amendment should pass?

Mr. Bingham. I do. The veterinary surgeon not only does this work for the benefit of the animal, but for the protection of millions of dollars of Government property.

Mr. Green of Pennsylvania. Mr. Chairman, it seems to me, from the remarks which have been made by members of the House in opposition to this amendment, that the value of the horse and mule in the Army is not at all appreciated. I call the attention of gentlemen to the fact that the fighting of our Army is to-day on an entirely different principle from the fighting of twenty years ago, or even of ten years ago. The long-range guns of the artillery and the infantry require the utmost celerity of movement. We shall find in the future that the victories will be gained as often by the rapid movement of our cavalry and our infantry as in any other manner. In fact, the army horse and mule rank second only to the soldier and the gun.

This proposition seems to me an exceedingly fair one. Any man who has watched the movements of even an infantry regiment must have seen the absolute necessity of having some responsible, qualified person in charge of the horses of a regiment. Why, sir, an infantry company can be delayed not only hours, but days, by having a few of its mules out of condition. Almost every part of the impedimenta of an infantry company to-day is moved by the company wagons, and the movements of the company are entirely dependent upon having the horses in condition to move rapidly. If there is any valuable provision that could be introduced into this army bill—one which will pay the nation in time of war for its adoption, one which would help in winning victories, whether on this side of the ocean or on foreign shores—I believe that this amendment, if adopted, will be one of the most valuable improvements that can be made in the framing of an army bill.

I ask the members of the House to consider the fact that most of the military work, not only carried on to-day, but which will be carried on by the United States in the future, will be in foreign lands. We all know that the sickness which has prevailed among our troops in the Philippine Islands and in China has been shared by the horses and mules of the Army. Any man who has watched the war in South Africa has had forced upon his attention the fact that the trouble with the English troops has been that they have been constantly hampered by the sickness of their horses everywhere. Thousands and thousands of horses and mules have recently been purchased in this country for use in Africa, simply because of the terrible amount of death and disease among the horses there. It is an old saw that every man's business is nobody's business, and if you want the horses and mules of the Army to be taken care of—if you think they are worth taking care of, as I certainly do—it is absolutely necessary to have a bureau to take charge of this subject, with a competent head, and with persons under him qualified for the peculiar work.

There is only one way to get men who are properly qualified to take charge of horses or to give general directions for that purpose, and that is by giving qualified men rank in our Army. It requires educated men to take care of horses. Perhaps just as much education is required in this line as in taking care of men. And, as I have just said, the only way to secure proper service in this line is to give rank to the officers who have charge of such work. It must be a badge of honor. I am not only pleased to vote for this proposition, but I think it is the duty of every member, especially as the expense of the proposed amendment, is certainly not great—though if it were five times as much I should favor it—I believe it to be the duty of every man who has at heart the creation of an efficient Army to vote for this provision.

Mr. Butler. Mr. Chairman, I desire to say one word in favor of the most faithful animal that ever moved a foot or served a master. I would go further than the present proposition; I would require, if I had the power, that these veterinary surgeons should go into places of danger to attend and treat horses, in the same way that a medical officer is required to go on the field of battle under the present regulations. I think this regulation will overcome the distinction made by the gentleman from Wyoming in answer to a question which I put to him a few moments ago.

Mr. Steele. Mr. Chairman, it has been stated by the gentleman from Pennsylvania that the total cost of this service, in the pay of the officers provided, would be $33,500. I find by looking at the pay table that a colonel who has just entered the service is entitled to $3500; and this bill provides for 1 colonel. A major (one such officer being provided by this bill) receives as pay proper $2500, allowing nothing for longevity service. Then the amendment provides for 4 captains, the pay of whom would be $2000 each, without any additional allowances, amounting to $8000. Then there are to be 10 first lieutenants, at $2000 (saying nothing of allowances), making $20,000. Then there are 20 second lieutenants at $1500 each (taking into account nothing for allowances), making $30,000. It will thus be found that the total amount of pay for this corps under this amendment will be $64,000. In addition to that, officers who have been in this service for fifteen years as veterinarians, would receive longevity pay and other allowances. The cost for pay and allowances, saying nothing of traveling expenses, would be about $100,000.

I think, as the chairman of the committee has suggested, that it would be perfectly fair to let this matter go to conference with the other provisions of the bill. In that way we could arrive at a much better conclusion than, I think, can be arrived at by undertaking to act on this subject here and now. While this amendment at the beginning would simply call for a colonel and a major at the War Department headquarters, mark my words, inside of five years the number of field officers will be materially increased, as well as the expense.

Mr. Sulzer. The gentleman says let this go to conference. Why not adopt the amendment and then let it go to conference?

Mr. Steele. If we adopt the amendment, there can be no conference, so far as this provision is concerned.

Mr. Sulzer. The gentleman is mistaken.

Mr. Steele. I beg the gentleman's pardon. This is a provision of the Senate bill, and if the House and the Senate agree upon the proposition there will be nothing to confer about.

Mr. Parker of New Jersey. Mr. Chairman, many of my friends are veterinary surgeons. We should have the very best talent in that service that the United States can afford, and the most experienced surgeons should be found and honored in our Army. But I cannot accept the proposition which is now before the House as an amendment to the pending bill; and I beg the House to bear with me a moment and to understand with me what that provision is.

As has been pointed out by the chairman of the Committee on Military Affairs, it is not a question whether veterinary surgeons should have rank or pay or honor, but whether they should constitute a new and separate staff corps. It is whether we should accept this particular provision for such a corps without recommendation by the War Department or the Army, without the opinion of that Department, and without opportunity under the rules to perfect this proposition. We are asked not to accept surgeons as officers, but to establish a new corps. What does that mean?

What is a corps? It is an independent branch of the Army.

If this provision is adopted it means that the officers of such a corps are not under the control of the officers of the line.

In the last war with Spain there was a case—there may have been others—but there was a case where a brigadier-general in charge of a camp with a thousand sick men found that the doctors in charge of the hospital were spending their afternoons on hotel porticos away from the camp. He told them to to go back to duty and take charge of the sick men in the hospital. He was informed that he was not in a position to give such an order. And, Mr. Chairman, he only got the medical corps back to their duties when, after going 120 miles, he was enabled to find at division headquarters an authority which had the right to give the order to them.

Now, a doctor may rightly order a man out of the ranks, if he is sick and unable to perform duty, and the doctor may rightly send him to a hospital whether his commander assent or no. That is where the question is of human life. But when we come to dealing with horses and mules, a very different case is presented, for there may be conditions which require the quartermaster to work his mules or horses for army transportation whether they are sick or well, and there should be no interference with the performance of his duty under such circumstances.

If a captain of a troop or battery desires to use the horses or mules under his command, sick or well, and finds it necessary to do so if the exigencies of the service so require, no man should be allowed to interfere. You can and should employ a veterinary surgeon where his services are needed; you may make him an officer, but you cannot safely employ or establish a veterinary corps which shall in any way supersede the power of the commanding officer.

As I have already said, the surgeon may send a man into the hospital and may order him out of the ranks in case of sickness, but the officer in charge of a battery or a company has the right to use horseflesh—noble as that animal may be—under any circumstances which may present themselves to him. He has enough staff subjection already. The man of the Army, the officer of the line, is subject to a system of staff inspection and orders unknown in any other country. It may be now noticed because it will come up later on in the consideration of the bill. He cannot get provisions without going to the subsistence department or transportation without the aid of the quartermaster's corps.

He cannot get his men paid without going to a separate pay department, nor get guns or ammunition without applying to a separate ordnance department. His life is a life of requisitions and red tape. Other armies put these departments in each division under the general commanding the division, and in each post, while the staff have assimilated rank and good pay, they are under the commander of the post, under any captain of an independent command, who keeps, and is bound to keep, all branches of the service under his control so far as his command extends.

The Chairman. The time of the gentleman from New Jersey has expired.

Mr. Sulzer. I ask that the gentleman's time be extended five minutes more.

The Chairman. The gentleman from New York asks that the time of the gentleman from New Jersey may be extended five minutes. Is there objection?

There was no objection.

Mr. Parker of New Jersey. In every other army, especially in the German army, the staff in all its branches is made the servant, or at any rate the friend, of the line. Our great Secretary of War, the greatest, I believe, that we have had since Stanton, says that the need of our Army is to bring the line and staff together. He therefore proposed and urged upon us that details should go from the line to the staff, and from the staff back to the line, as proposed in the Senate bill; that there should be only details and no permanent appointments, so that the whole Army should be one, working harmoniously together through the system of details without subjection of the line to permanent and separate staffs.

The committee and perhaps a majority of this House concluded that we should go slowly. That may be wise. We therefore provide by the House bill that there shall be details, but only in the lower grades of the staff, and we add to the Secretary's plan that these details shall be settled by competition before boards of officers, so as to avoid favoritism and to determine fairly what men shall go into the lower ranks of the staff. The bill thus provides for a perpetual change and flow between the line and the lower ranks of the staff of the Army.

For the higher ranks of the staff the bill provides that from those who have been detailed there shall be competitive examination for appointment to these higher ranks, so that we shall get the cream of our young men in the great staff departments of the Army, while we give them enough army service to keep them in touch with the needs of that Army, and prevent the disposition to red tape that assails anybody who is permanently in a separate corps.

That is the object of this bill, to abolish or, at least, mitigate the evils of separate staff corps. Let us not attack the general object of this bill by establishing another separate corps and counteract the views of our great Secretary of War by putting alongside of the many independent staff corps another corps with independent command, free from control by the line.

Give rank if you please, or honor if you please, but let us aim to unite and not to disunite each division of the Army.

This provision is in the Senate bill. When the matter goes into conference a satisfactory and proper section can be put in its place. But if this amendment be adopted, it must be taken as it is, with its faults.

Mr. Bingham. Mr. Chairman——

The Chairman. Debate on this amendment is exhausted.

Mr. Hull. I ask for a vote on the amendment.

The question was taken on the amendment of Mr. Bingham, and the Chairman announced that the "noes" appeared to have it.

Mr. Bingham and Mr. Sulzer demanded a division.

The committee divided; and there were—ayes 58, noes 56.

Mr. Hull. I ask for tellers.

Tellers were ordered; and the Chairman appointed Mr. Bingham and Mr. Hull.

The committee again divided; and the tellers reported—ayes 80, noes 72.

Accordingly the amendment was agreed to.

BIBLIOGRAPHY.

METHODS FOR THE EXAMINATION OF MILK, for Chemists, Physicians, and Hygienists. Compiled by Dr. Paul Sommerfeld, of the Emperor and Empress Frederick Hospital for Children of Berlin. Translated by Dr. A. T. Peters, of the University of Nebraska, and R. S. Hiltner, A.M., Instructor in Chemistry at the University of Nebraska. Chicago: Alexander Eger.

One by one the subjects which are of practical importance to the veterinarian are being abridged into comprehensive little "guide books" for ready reference without the necessity of wading through the heavy and unwieldy scientific treatises, and in the accomplishment of this important undertaking the profession is under many obligations to Mr. Eger, who has gone about this task in a most intelligent and patriotic spirit, producing them in rapid succession, selecting the best authorities in different tongues, and securing their translation, and Americanization by men of well known ability in the particular field treated of.

We have just received from the publisher a copy of the above work, and after a casual perusal of it we have no hesitation in saying that within the 100 pages comprising the little work the subject is thoroughly discussed, and rules laid down for the examination of milk by commercial analysts, market inspectors and health officers. As showing the scope of the contents the work is divided into eight sections, as follows: I, Qualitative Examination of Milk; II, Methods of Quantitative Analysis; III, Detection of Preservatives; III, Detection of Adulterations; V, Estimation of Insoluble Foreign Matter; VI, Examination of Condensed Milk and Curdled Milk; VII, Appendix, treating of the Examination of solid forms of preserved milk; VIII, An extensive Bibliography for the guidance of those who wish to examine further details of any branch of the subject. The volume may be obtained at small cost from the publisher, Alex. Eger, 134 East Van Buren Street, Chicago.

PROCEEDINGS OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION, Session of 1900. Edited by the Publication Committee, M. H. Reynolds, Chairman, St. Anthony Park, Minn. St. Paul, Minn: Pioneer Press Co.

In less than ninety days the volume of 1900 was in the hands of the members, and they are enabled to deliberate upon the full transactions of the convention held at Detroit; to read at their leisure the papers presented, the discussion of those read, and the business transacted, as well as the details of the clinics, the attendance, the entertainment, and all other matters of interest which occurred. The volume contains the names of the honorary members, which now number 26, three of whom are dead, and a list of the Presidents and Secretaries since the organization of the Association. These latter lists were very carefully verified by Chairman Reynolds, and are as follows: *Presidents*—1863–64, J. H. Stickney, Massachusetts; 1864–65, A. S. Copeman, New York; 1865–66, C. M. Wood, Massachusetts; 1866–67, R. H. Curtis, New York; 1867–69, R. Wood, Massachusetts; 1869–71, E. F. Thayer, Massachusetts; 1871–75, A. Large, New York; 1875–77, A. Liautard, New York; 1877–79, C. P. Lyman, Massachusetts; 1879–81, J. L. Robertson, New York; 1881–83, W. Bryden, Massachusetts; 1883–85, W. B. E. Miller, New Jersey; 1885–86, L. McLean, New York; 1886–87, A. Liautard, New York; 1887–89, R. S. Huidekoper, Pennsylvania; 1889–90, C. B. Michener, New York; 1890–92, R. S. Huidekoper, Pennsylvania; 1892–93, W. L. Williams, Indiana; 1893–96, W. Horace Hoskins, Pennsylvania; 1896–97, F. H. Osgood, Massachusetts; 1897–98, D. E. Salmon, District of Columbia; 1898–99, A. W. Clement, Maryland; 1899–1900, Leonard Pearson, Pennsylvania; 1900–1901, Tait Butler, Indiana. *Secretaries*—1863, A. Liautard, New York; 1864, R. Jennings, New Jersey; 1865–67, C. Burden, New York; 1867–69, J. F. Budd, New York; 1869–74, J. L. Robertson, New York; 1874–77, J. D. Hopkins, New Jersey; 1877–80, A. A. Holcombe, New York; 1880–89, C. B. Michener, New York; 1889–93, W. Horace Hoskins, Pennsylvania; 1893–94, T. J. Turner, Missouri; 1894–95, Leonard Pearson, Pennsylvania; 1895–1901, S. Stewart, Kansas.

The Constitution and By-Laws are printed in full, as well as the proceedings of the fourth annual meeting of the United States Experiment Station Veterinary Association, with the papers presented.

The volume is a perfect résumé of the transactions of the association, and forms a valuable addition to the veterinary library.

SOCIETY MEETINGS.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The eighteenth meeting was held at the Sherman House, Chicago, November 15 and 16, 1900, and was called to order at 2.30 P. M., with President W. J. Martin in the chair.

The following members were present: W. J. Martin, Kankakee; N. P. Whitmore, Gardner; Albert Babb, Springfield; N. I. Stringer, Watseka; H. A. Pressler, Fairbury; J. F. Pease, Quincy; W. C. Hannawalt, Sheffield; R. F. Hoadley, Yorkville; M. Wilson, Mendota; W. H. Welch, Lexington; A. H. Baker, R. G. Walker, J. F. Ryan, E. L. Quitman, S. S. Baker, J. L. Siegrosser, and A. C. Worms, of Chicago. Visitors: T. M. Doran, Evanston, and J. R. Kelso, Hebron.

The minutes of the previous meeting were read and approved.

President Martin then read his annual address,* which was of a most interesting character.

Dr. W. C. Hannawalt then gave a couple of very interesting case reports, one of "Actinomycosis," † and the other that of a very "High Temperature," † the animal dying in an hour and one-half, showing most violent symptoms of delirium and viciousness. Discussed by Drs. Quitman, Babb, Pressler, Pease, Baker and Martin.

A very able and interesting paper was now read by Dr. Campbell, of the United Pharmacal Co., Chicago, on the "The Antiseptic Treatment of Wounds by the Use of Oxychlorine, a Chemical Combination of Oxygen and Chlorine." Discussed by Drs. Worms, Babb, A. H. Baker, Pease, Walker, and Quitman.

Dr. W. H. Welch now gave a couple of interesting case reports—"Paint Poisoning in Cows" and "Retained Fœtal Skeleton in a Bitch." Discussed by Drs. Babb, Kelso, and Baker.

Meeting was now adjourned to meet at 9 A. M., November 16th, at Chicago Veterinary College for clinics.

November 16th.—Meeting reconvened at 3.30 P. M. at the Sherman House, President Martin in the chair.

Dr. E. L. Quitman read a very interesting paper on the "Action of Formaldehyde." Discussed by Drs. Martin, Pease, Wilson, A. H. Baker, Siegrosser and Grüner.

The society now proceeded to the election of officers for the ensuing year.

Dr. W. J. Martin, of Kankakee, was renominated for the presidency but respectfully declined the honor, having served the association faithfully the past two years.

Dr. A. C. Worms, of Chicago, was nominated and respectfully declined the honor.

Dr. M. Wilson, of Mendota, was now nominated, as was also Dr. T. J. Gunning, of Neponset.

Balloting then proceeded and Dr. Gunning was declared elected President for the ensuing year.

For Vice-President Doctors Worms and Stringer were nominated, and balloting resulted in the election of Dr. Worms.

Dr. W. H. Welch, of Lexington, was unanimously elected to the office of Secretary.

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* Printed elsewhere in this issue.

† Will be printed in February REVIEW.

Dr. R. G. Walker, of Chicago, was unanimously elected to the office of Treasurer.

Drs. Pease, Siegrosser, and Frye were unanimously elected as the Board of Censors.

The newly elected officers now assumed control. In the absence of Dr. Gunning, Dr. Worms took the chair.

A unanimous vote of thanks was given Dr. Martin for his untiring efforts during his term of office as President.

The chair appointed Drs. Quitman, Baker, and Wilson as a committee to audit the books and report at once. A balance was reported on hand of $26.84.

On motion it was decided that the semi-annual meeting be held in Bloomington.

On motion a committee of three acting with the officers were instructed to draft resolutions asking Governor-elect Yates to appoint a graduate of a recognized veterinary college to the office of State Veterinarian.

Motion empowering Dr. A. H. Baker to purchase association stationery. Carried.

Motion to refer bill of $20 of S. S. Baker to the Auditing Committee. Committee reported that it be paid. So ordered.

Society adjourned. W. H. WELCH, *Secretary*.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

The semi-annual meeting of the society was called to order by Dr. A. H. Hartwig at 3 P. M. at the Kirby House. The roll-call showed the following present: Drs. S. Beattie, W. G. Clark, B. L. Clark, H. P. Clute, C. Evans, H. F. Eckert, E. R. Flack, A. H. Hartwig, Chas. Koehne, G. Ed. Leech, E. L. Morgenroth, E. A. McCullough, E. H. Newton, C. W. Ormond, J. F. Roub, D. Roberts, Chas. Schmitt, S. S. Snyder. Visitors: Dr. J. M. O'Reilly, Merrill, Wis.; Dr. R. E. Cochrane, Milwaukee, Wis., and Dr. A. J. Nelson, Stoughton.

The Secretary reported in regard to replies from some members in arrears. It was moved by Dr. Snyder and seconded by Dr. Clute that one-half of Dr. Kenyon's dues be remitted, and the Secretary be so instructed. Carried. The collection of back dues was discussed by Drs. Flack, Roub, Clute, W. G. Clark, Ormond, Leech. It was moved and seconded that a revisionary committee be appointed in regard to the collection of back dues. Carried. The President appointed Dr. Ed. Flack, Dr. C. H. Ormond and Dr. S. S. Snyder.

The Secretary reported in regard to members of the Bureau of Animal Industry being granted certificates of honorary membership. Discussed by Drs. Flack, Leech, Clute and W. G. Clark. It was moved and seconded that that part of the constitution in regard to honorary membership for members of the B. A. I. be stricken out. After discussion the motion was withdrawn.

Dr. A. H. Hartwig brought up the matter of prosecutions under our State Veterinary Law. Discussed by Dr. Roub, A. H. Hartwig, Schmitt, Clute and Leech. It was moved and seconded that a committee be appointed to draw up resolutions in regard to prosecutions under the State law. The President appointed as a committee on resolutions to report at the evening session, Drs. Leech, Clute, Roub, Snyder and Evans.

It was suggested by the President that a standing committee on Veterinary Legislation be appointed. Discussed by Drs. G. Ed. Leech, Clute and Schmitt.

Moved and seconded that the Secretary be instructed to inform Dr. H. L. Russell, that the use of tuberculin by students of the agricultural course in testing herds of cattle conflicts with the present State law, and that they render themselves liable to prosecution under the same. Carried.

It was moved and seconded that a standing committee on legislation be appointed. Carried. Dr. Leech recommended that the Chair have the appointive power in regard to this committee and that one or two members be appointed by the Chair each year. Discussed by Drs. Clute, Schmitt and Flack. Motion carried.

Dr. Leech announced that Dr. Hughes would be present at the session this evening and at the clinics to-morrow.

The use of a lapel button was discussed and the Secretary was instructed to call on Bunde & Upmeyer and get prices.

Under applications for membership the applications of Dr. J. M. O'Reilly, R. E. Cochrane and A. J. Nelson, were received and were reported favorably by the Censors. On motion they were declared elected by acclamation.

Dr. Hartwig gave a short *résumé* of the Detroit meeting. The programme for the evening and to-morrow forenoon was read.

Adjourned to 7.30 P. M.

Evening Session.—The evening session was called to order by the President at 8.30 P. M. Present: Drs. Beattie, W. G. Clark, B. L. Clark, Clute, Evans, Eckert, Flack, Hartwig, Koehne, Leech, Morgenroth, McCullough, Newton, Ormond, Roub, D. Roberts, Schmitt, Snyder, O'Reilly, Cochrane, Nelson, Harrison. Dr. Jos. Hughes, Professor of Anatomy of the Chicago College, was present.

The committee on resolutions in regard to prosecuting board of the society, Dr. Leech, as chairman, presented the following resolutions:

WHEREAS, This society realizing the fact that the time has come for some action to be taken in the matter of the prosecution of illegal practitioners in our State, be it, and it hereby is

Resolved, That the Chair be authorized to appoint a committee of five (5) members, whose term of office shall be as follows: One for one year, one for two years, one for three years, one for four years, and one for five years, and at the annual meeting in 1902 one member shall be appointed for five (5) years and thereafter one member shall be appointed each year for a term of five years. Such appointments shall be made by the Chair and it shall be the privilege of the Chair to fill all vacancies that may occur on the committee, and it is further

Resolved, That the Chair shall as far as possible, in making up this committee, distribute its members over the whole State, and it is further

Resolved, That in creating this committee it shall be for the benefit of the society only. It is further

Resolved, That this committee shall be known as the Prosecuting Board of this society. Duties of the Board: (1) To prosecute illegal practitioners; (2) To distribute literature to such practitioners whenever requested by any member of the society; (3) The members of this board shall be subject to call by any member of the society and he shall be paid by the practitioner calling him five dollars ($5) per diem and actual expenses incurred. It is further

Resolved, That the expenses of the board shall be met by the society —for stationery, the Secretary to furnish the same. And it is

Resolved, That this board shall consist of an elective President and Secretary, who shall report to the Society the work done semi-annually.

On motion the resolution was adopted and the President appointed the following members of the board: For 1 year, Dr. Chas. Koehne, Paynesville; 2 years, Dr. Chas. Schmitt, Dodgeville; 3 years, Dr. J. M. O'Reilly, Merrill; 4 years, Dr. S. J. Beattie, Madison; 5 years, Dr. S. S. Snyder, Cedarburg. The Board elected Dr. Snyder President, and Dr. S. J. Beattie, of Madison, Secretary.

Moved and seconded that the President have appointive power in filling vacancies in the Committee on Legislation. The President appointed as a committee, Drs. H. P. Clute and G. Ed. Leech for two years, Drs. D. Roberts and R. S. Heer for four years, Drs. C. Evans and Jos. Roub fcr six years.

Reading of Essays and Communications.—Dr. R. H. Harrison read a paper on "Meat Inspection in our Abbatoirs," giving a brief outline of the symptoms and post-mortem appearances of the diseases for which animals are condemned by our inspectors, including swine plague, Texas fever, anthrax, tuberculosis and actinomycosis. Discussed by Drs. Schmitt, Clute, Caldwell. Discussion closed. On motion a vote of thanks was tendered Dr. Harrison for his paper.

Dr. Beattie read a paper on "Something about Shoeing." Discussed by Drs. Leech, Roub, Clute, Schmitt and Flack.

Dr. Jos. Hughes, of the Chicago Veterinary College, was present and gave a very interesting talk in regard to balancing the foot, shoeing, etc. On motion a vote of thanks was tendered Drs. Beattie and Hughes for their excellent communications.

Dr. A. H. Hartwig reported 28 cases of parturient paresis with 26 recoveries. Treated by potassium iodide. He recommended thorough massage. If unable to tie up on sternum, frequent turning is recommended and give small doses of aromatic spirits ammonia. Discussed by Drs. Schmitt, Beattie, Eckert, Clute, Roub, Snyder and Evans. Discussion closed.

Dr. Roub brought up a case of supposed lightning stroke and requested information in regard to post-mortem appearances. Discussed by Drs. Harrison and Clute.

Adjourned to meet at 8.30 in the morning, taking a car for Dr. Roberts' hospital.

Sept. 12.—The members of the society, after a twenty-mile trolley ride, met at the hospital of Dr. Roberts, at Waukesha. The Doctor has a commodious and well appointed hospital, and the following operations were performed:

Spaying heifer, Dr. Chas. Schmitt; spaying pig, Dr. J. F. Roub; spaying bitch, Dr. D. Roberts.

Castration, standing operation, Dr. H. P. Clute.

Umbilical hernia, Dr. Jos. Hughes.

When the bitch was prepared for operation it was discovered she was pregnant, and the uterus and appendages were removed. The operation was performed under the influence of chloritone.

The applications of Drs. C. M. Crane, of Waukesha, and Dr. L. J. Tasche, of Sheboygan, were presented, and were reported on favorably and they were elected to membership. There being no further business the society adjourned to meet in Madison during the month of February.

W. G. Clark, *Secretary.*

Note.—The annual meeting of the Society of Veterinary

Graduates will be held in Madison, Wis., February 5th and 6th, 1901. An interesting programme will be presented and clinics will be held on the second day. The members have been invited to visit the Experiment Station. All graduates are cordially invited to be present. W. G. CLARK, *Secretary.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

President Tait Butler, Manhattan, Kansas, has appointed the Committee of Arrangements for the Atlantic City meeting as follows: Dr. Wm. Herbert Lowe, 188–190 Ellison Street, Paterson, N. J., Chairman; Dr. T. Earle Budd, Orange, N. J.; Dr. Thos. E. Smith, Jersey City, N. J.; Dr. Robert W. Ellis, New York, N. Y.; Dr. W. Horace Hoskins, Phliadelphia, Pa.

Dr. Wm. Herbert Lowe, Chairman of the Committee of Arrangements for 1901, writes the REVIEW as follows: "I believe that the meeting of the National Association in New Jersey in 1901 is calculated to do great good in this State, and in turn there is very little doubt in my mind but that the A.V.M.A. will be materially strengthened by recognizing New Jersey's claims. I propose to set all the machinery of our amalgamated State association at work to make the first meeting in the new century surpass anything that has ever been achieved on this continent, and I realize that this is saying a good deal . . . I would suggest that half of one day be set aside for the clinic. Philadelphia and New York will be expected to do their share. Both of these great cities are not only in close proximity to New Jersey's famous seaside resort, but each is the seat of a great university with a veterinary department. Each of these veterinary schools will be expected to send two or three of their best operators. . . . A properly conducted veterinary clinic will in itself draw practitioners from all over the country. There is no question but that the clinic is a popular feature, but it will have to be conducted differently from some of those we have had if it is to retain its popularity with the profession. . . ."

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly and annual meeting was called to order by President Robertson in the lecture room of the New York-American Veterinary College, on Wednesday evening, Dec. 5, 1900. Those present at roll-call were Drs. Clayton, Drucker, Ellis, Grenside, Goubeaud, Hanson, Lellman, Parry, Robertson, and Sherwood. As visitors, veterinary students Wertheimer and Bose and Counsellor Frank L. Stevens.

Dr. Clayton gave a report on an exaggerated case of laminitis, its treatment and termination; exhibiting the feet and lower section of legs as dried specimens. Dr. Clayton's report on the case was very interesting, as were the specimens, which showed the pedal bones to have assumed a perpendicular instead of horizontal relation to the sole. In one of the feet it had gone beyond the perpendicular even.

During the discussion of this case, Dr. W. C. Bretherton's son, Dr. George Bretherton, brought in his father's dues, and his regards and best wishes for the association's future, the good Doctor being too sick to attend, having been, in fact, a *very* sick man for some time past.

After the discussion on Dr. Clayton's case had been finished, Treasurer Hanson was called upon by the President for a report. Dr. Hanson reported having received from the Secretary during the year, $77, and having expended during the year $71.84, leaving a balance in the treasury of $5.16. Moved by Dr. Grenside that the Treasurer's report be accepted. Seconded and carried.

There being no committees present to report, the election of officers for 1901 was the next order of business.

Moved by Dr. Clayton that the By-Laws be suspended, and that one vote be cast for the reëlection of the present officers collectively. The Secretary raised as an objection to the motion, that he desired to be released from office, and take his place in the ranks, where he felt he could be of use to the association; and favored the infusion of new blood in his office, and requested that the several officers be elected individually, as was customary. Dr. Clayton withdrew his motion and nominated for President Dr. Jas. L. Robertson. Dr. Robertson said, he, too, like the Secretary, would like to take his place in the ranks, having served two full terms, since finishing his predecessor's term, but was ruled down, and was unanimously elected President for 1901.

Dr. Ellis then nominated for Vice-President Dr. Harry D. Hanson. Nominations for this office were closed and Dr. Hanson was unanimously elected Vice-President for 1901.

Several nominations were made for Secretary, including the present incumbent, all of whom declined. Dr. Hanson then nominated Dr. Keller (absent), and he was elected subject to his acceptance. On being notified of his election he declined to serve, hence no Secretary for 1901 has been elected.

Dr. Ellis nominated Dr. F. C. Grenside for Treasurer. Nominations were voted closed, and Dr. Grenside was unanimously elected Treasurer for 1901.

Under the head of "New Business," Dr. Clayton took up the old subject of how to enthuse the members to attend the meetings in greater numbers; and the possibility of clinics at these meetings was suggested. This had the effect of stimulating an animated discussion, in which Dr. Goubeaud, of Brooklyn, took an active part; and the scheme seemed to meet the approval of all present, and it was finally agreed to try and arrange for a clinic at the next meeting, Dr. Parry volunteering to stable the patients, be they one, or two, or three, after the operations. This offer was accepted.

Dr. Hanson then reported to the association an illegal practitioner, whom he said he had in a position to prosecute, having all the necessary evidence, and an offer from Mr. Stevens to prosecute him for fifty dollars. Mr. Stevens was then introduced, and told the members how he would proceed in such a case, and made so favorable an impression on all present, that it was finally decided to give him the case to prosecute.

The meeting was then formally adjourned and the members repaired to the lower hospital ward, to examine two interesting cases of paralysis in horses, one of the fore, the other of the hind extremity.

ROBERT W. ELLIS, D.V.S., *Secretary.*

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

This association will meet at the Ohio State University, Columbus, on the afternoon of Jan. 16, continuing all day on the 17th. There will be good clinics if suitable material can be secured.

WM. H. GRIBBLE, *Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The annual meeting will be held in Trenton, N. J., Jan. 10th. The new constitution and by-laws revised to meet the requirements of the amalgamation will come up for adoption, officers will be elected, a State committee will probably be appointed to coöperate with the Committee of Arrangements for the meeting of the American Veterinary Medical Association at Atlantic City next September, and interesting papers will be read. All veterinarians, residents of the State of New Jersey, whether members or not, are invited to attend.

IOWA STATE VETERINARY MEDICAL ASSOCIATION.

Secretary Brown writes us that the next meeting will be held in Des Moines, January 23 and 24, 1901, and that everything indicates an unusually good meeting.

THE NORTH CAROLINA STATE VETERINARY MEDICAL ASSOCIATION will meet in Raleigh this month, when strenuous efforts will be made to have several bills passed looking to the protection and advancement of the profession in that State.

THE SOUTH DAKOTA VETERINARY MEDICAL ASSOCIATION holds an important meeting at Station Hotel, Huron, S. D., Jan. 15, and Secretary Foster invites all veterinarians to be present.

NEWS AND ITEMS.

DR. C. M. MCFARLAND, of Cincinnati, spent his holiday vacation with his parents and friends in Kansas City, Kansas.

THE CHICAGO VETERINARY COLLEGE has an attendance this session of 93 students. Quite an improvement over recent years.

CHARLES TOMLINSON, D.V.S., son of Dr. Wm. J. Tomlinson, of Williamsport, Pa., was shot and killed the latter part of December, in West Virginia.

DR. H. V. BOYCE, an employee of the Bureau of Animal Industry of Sioux City, visited friends in Kansas City during holiday week.

WE hear that Dr. Olof Schwarzkopf, while at Tokio, Japan, received a wound in his hand, which became infected, and he had a serious time with it for a number of days, finally recovering. He has, we believe, been ordered to Manila, P. I.

HORSE POWER SUPPLANTS THE AUTO.—The extensive cab business of R. H. White & Co., of Boston, which has been employing twenty-eight automobiles in its service, has dismissed them and gone back to the horse as a motive power.

ON account of continued illness in the family of Dr. Joseph W. Parker, of South St. Joseph, Mo., he has been obliged to resign his position as Secretary of the Missouri Valley Veterinary Medical Association. Dr. W. Ross Cooper, 1714 Kansas Avenue, Kansas City, Mo., has been appointed to fill the vacancy.

DR. RUSH S. HUIDEKOPER, who has worked so hard to secure the passage of the veterinary army bill through Congress, was confined to his bed for ten days during November through an attack of pneumonia ; but nothing daunted he kept up an energetic fusilade from his sick bed, and used his convalescent period for greater exertions.

MR. ALEXANDER EGER, of Chicago, known to veterinarians from Maine to California through his long connection with the Chicago Veterinary College and as a dealer in and publisher of veterinary books, will throw off the dignity of bachelorhood for the glories of a benedict on the 2d inst., the fortunate lady being Miss Vilma Glick, of Calumet Avenue, Chicago. We wish the happy couple all the joy that is possible for the world to bestow.

DR. JAMES T. GLENNON and Miss Mary E. Quinn, both of Newark, N. J., are announced to be married on Wednesday morning, January 2, at St. Michael's church, of that city. Dr. Glennon is a successful practitioner of Newark and is a highly esteemed member of the Veterinary Medical Association of New Jersey. He was one of those who so ably assisted Dr. Lowe last year in the great work of organizing the profession of the State into one strong harmonious body. Dr. Glennon has the best wishes of many friends.

THE VETERINARIANS OF MISSOURI are united in an effort to secure the enactment of a veterinary law at the hands of the State Legislature during the session to begin January 2. The only opposition that the measure is likely to receive will come from an institution which desires to profit by a low standard of education. The bill provides that all new comers after the law goes into effect shall submit to an examination, also be graduates of a school requiring attendance of three sessions. The interests of the State Association are being carefully looked after by a most excellent committee composed of Drs. F. W. O'Brien, Chairman and ex-Mayor of Hannibal, T. F. Arnold, Lewistown, and D. F. Lucky, Columbia, State Veterinarian. The measure is being thoroughly placed before the members of the Legislature, and large and influential stock owners throughout the State are being interested in the measure. An almost identical bill was introduced into the Legislature two years ago, but for want of general support was lost in committee.

SO-CALLED CEREBRO-SPINAL MENINGITIS.—Dr. Leonard Pearson, State Veterinarian of Pennsylvania, in November *Journal*, describes some investigations of the disease known as cerebro-spinal meningitis, characterized by paralysis of the throat with progressive paresis, and death in a few days, which by most observers has been suspected to be due to diseased food, but without a single instance of proof. Visiting a farm where five horses had died, he secured some of the silage upon which the dead horses had been fed, and took it to the hospital of th University of Pennsylvania for experiment. Half a bushel of it was fed to a nine-year-old gelding, from Oct. 30 to Nov. 2. On Nov. 3 there was well-marked paresis of the throat and muscles of mastication, twitching of flank muscles, desire to lie down and difficulty in arising. Symptoms gradually increased, animal dying Nov. 4. A ten-year-old horse healthy but for ringbones, was on Nov. 5 given four gallons of water that had percolated through a bushel of silage; Nov. 6, three gallons of water from same silage; Nov. 8, six quarts of silage. Nov. 9 he chewed and swallowed slowly, trembling of muscles, partial paralysis of throat, laid down most of time. Nov. 10, found dead. Autopsy in each case proved negative except for swelling and dark red, almost black color of mucosa of pharynx and glottis, stomach congested and contents putrid; appeared to be an excess of cerebro-spinal fluid. Brain, cord, and meninges normal. He suggests the name of "forage poisoning."

"AND THE ASS OPENED HIS MOUTH AND SPAKE."—Some valued correspondent in Washington sent us a copy of New York *Life* of Dec. 6, with the following article marked. Out of courtesy to our unknown friend, we reproduce it, with the suggestion that in all probability the society reporter who wrote the item is more competent to describe the costumes of the ladies than he is to predict the future of the horse: "The Harvard Veterinary School has given preliminary notice of its intention to shut down as soon as its present students have finished their course. It doesn't say that the automobile has killed it. It says—or its friends say for it—that it has been running at a loss for eighteen years, and cannot keep on without an endowment. Now, no one believes that the horse is to be relegated to the museums right away, but it is conceivable that the increase and the obvious usefulness of automobiles, as we know them, and the prospect that they will be cheapened, improved and multiplied indefinitely, should discourage hope that any benefactor will consecrate a large sum of money for all time to the work of training horse doctors, Veterinary instruction was never so good, or so thorough, or so scientific, as now, but with the street-car horse abolished.

the cab horse getting scarcer all the time, the canal mule disappearing, the delivery-wagon horse doomed and the truck horse threatened, horse doctoring seems likely to progress into the class of elegant and learned, but unremunerative, occupations which are fitter to attract endowed students than persons who expect to earn a living."

STANDARDIZATION OF DRUGS.—What right has any firm, whose business is to furnish the veterinarian with his principal weapons, to place upon the market pharmaceutical preparations of unknown medicinal value? Should we not expect, yes, even demand, that the producer of fluid extracts make his products conform to some standard of excellence—that he shall indicate what effects his fluid extracts may be expected to have ere he sends them forth from his laboratory? It has been shown that even drugs selected with care vary most extraordinarily in their percentage of active principles. Witness, for example, this statement by the editor of the *Bulletin of Pharmacy*: "Professor Puckner assayed nineteen samples of belladonna leaves procured, mind you, from dealers who were told that only the best was wanted, and that purchase would depend upon the results of assay. He found these nineteen samples to range in alkaloidal content from .01 to .51 per cent.! The strongest sample fifty-one times as strong as the weakest." The most careful treatment of such drugs, with the choicest menstrua, and by the most approved processes, will yield preparations that may be fair to look upon, but in medicinal value they will vary just as much as the crude drugs from which they are made. The compensatory remedy for this unfortunate condition is standardization—chemical standardization when practicable, and when that method is inadmissible, as it often is, physiological standardization. It has been found that certain important drugs cannot be assayed chemically, as their medicinal vlrtues reside in unstable bodies, and these are readily decomposed in the analytical processes. For this reason the strength of such powerful and useful drugs as digitalis, aconite, convallaria, strophanthus, ergot, cannabis Indica and many others, cannot be determined satisfactorily by the analytical chemist. However, the problem which proved to be an insurmountable difficulty to the chemist, was solved by the pharmacologist with ease. He tests upon living animals all drugs that cannot be assayed chemically. Dogs, rabbits, fowls and guinea-pigs receive doses of the preparations under examination. Accurate observations of their physiologic effects are made, variations are noted and corrected, until the preparations correspond in medicinal strength with the adopted standard extracts. The name of one of the greatest pharmaceutical manufacturing houses in this country is so closely linked with the phrase "drug standardization," that the mere mention of one suggests the other. Parke, Davis & Co. began years ago to manufacture a full line of standardized fluid extracts that are guaranteed to be of definite and uniform strength. More recently they devised and perfected methods for standardizing physiologically those important drugs that are incapable of analysis by chemical processes. Parke, Davis & Co. have done a great deal for the medical profession and for humanity, and standardization, more especially physiological standardization, is one of their greatest achievements.

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AMERICAN VETERINARY REVIEW.

FEBRUARY, 1901.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

It is some time since I had the pleasure to send our readers some European news, but, after all, the fault is not so much mine, as that of bad luck, which has permitted one of my manuscripts to be lost, or it may have been devoured by whales or other inhabitants of the deep in crossing the Atlantic. Now that my friends in New York have told me of the danger I will try to redeem myself with a promise of more exactitude in the future.

* * *

TUBERCULOSIS—AGE OF LESIONS.—That was the subject of my lost chronicle, and it was too interesting and important for me not to renew it concisely.

Our readers will remember that last July I spoke to them of a commission which had been appointed to carry out a series of experiments with the object of determining the incubative stage of tuberculosis and the age of the lesions that were found at post-mortems. The programme was well laid, and the animals divided into lots, to be infected in various manners, some by being fed with tuberculous matter, others to be contaminated by inhalation of tuberculous powders, some by injection of emulsion of tuberculous culture in the teats, one was to receive it in the trachea and one into the jugulars.

The entire series of experiments were carried out according to the programme, the temperature carefully registered, and the post-mortems, made at stated times, were witnessed by every member of the commission. Without going into the minute description of the entire proceedings—which may be later on presented in full in the REVIEW—I will only for the present state the interesting and important conclusions that those experiments justify.

(1) *Ingestion* is a mode of contamination far less efficacious than inhalation ; in spite of an enormous mass of tuberculous matter taken by the animals per mouth, one stood the infection without harm ; three others were infected to a very slight degree, and in two others the lesions were so small that they would have escaped notice if the autopsy had been less minute. One calf born of one of those cows was fed from birth with tuberculous milk and became infected only to a very slight degree. The period of incubation with those animals has varied between 32 and 48 days.

(2) The respiratory apparatus is the most ordinary and most efficacious way for tuberculous infection. Whether the tuberculous substances were *inhaled* as dry impalpable dust or in fine sprays the results were about the same. The period of incubation varied between 19 and 32 days. Direct injection into *the trachea* has not given the results which might be expected, as the lungs remained healthy and the manifestations of the infection remained localized at the point of the injection. In the animals whose air passages were infected by pulverization and sprays the thoracic organs were filled with tuberculous lesions.

(3) If the mucous membrane of the trachea is resistant to microbian infection, it is not so with the mucous membrane of the *mammary excretory ducts.* By the experiments made in this series, it was shown that the udder is of all the tissues of the living organisms the best media of culture for the bacillus of tuberculosis. Incubation with these cows varied between 3 and 13 days.

(4) The *intravenous injection* showed itself the most severe and quickest mode of infection. No conclusion can be derived

from this experiment as tuberculous infection never occurs in this way.

(5) This last conclusion is one which has the highest importance to the practical point of view, viz.: that upon none of the animals experimented upon, no matter how short the incubative stage had been, or how quick the evolution of the disease had been, none of the lesions had undergone the process of softening or of calcification, which it may be said is the rule among tuberculous bovines.

To resume and answer the two principal questions presented to the commission:

(1) Whatever is the mode of contamination, a certain lapse of time always passes between the time when the contagion has entered the organism and that when it manifests its effects by reaction to tuberculin; the duration of this incubation varies; in the experiments, where the chances of infection were the greatest, it has been of 19 to 32 days for infection by inhalation and of 32 to 48 by ingestion.

It is certain that in ordinary natural contagion, the duration of the incubation is longer.

If, then, a recently bought cow reacts to tuberculin within 30 days from the day of sale, the practitioner is perfectly authorized to conclude that, *in all probability*, the animal was infected before the sale.

(2) It is often difficult to give an opinion as to the age of the lesions found at the autopsies: the experiments do not bring definite answers to that subject; yet, if the lesions that are found at post-mortems are softened or calcified, whatever may be their extent, no matter how small and limited, the veterinarian can now in all certainty say that these lesions have existed for more than fifty days.

* * *

UNIVERSAL EXHIBITION OF 1900.—The great international fair of Paris has closed, and of all the grandeur which filled it and was witnessed by millions of people, there soon will remain but the souvenir. Millions of people came—and among those how many were interested in the veterinary exhibits, how many were veterinarians? No doubt the number of our European colleagues must have been quite large. Were there many Americans? I do not know. I had the pleasure of meeting only two. Perhaps there were more, but how could we meet in such large crowds? Now, however, our address is known to all our readers, and if any of them visit the gay city, we hope they will let us know it. But to come back to the veterinary exhibit.

* * *

To be correct, we ought to say exhibits—for there were six veterinary exhibitions. The collective of the French Schools, the retrospective of agricultural and veterinary teaching, the collective veterinary (practical) exhibition, the sanitary veterinary exposition of the Seine, and the exhibition of the Saumur School. The foreign veterinary schools were not gathered under one roof, but spread here and there in their pavilion or special exhibits of their respective countries. Of all those I wish to call the attention of our colleagues to that of the French schools and the sanitary exposition, as being those which can interest them the most and from which they can derive information and benefit by them.

* * *

The collectivity of the *French schools* was a good move—not only because it shows their intimacy and friendly relations, but because it permitted a grander exhibition of the great resources of the three establishments, and of the opportunities that they offer to students. Everything that could be desired was represented there, but that which drew our attention the most was the pedagogical side of the exhibition—that is, the utilization of the most modern methods of scientific teaching. It is no longer sufficient to express with beautiful language and fine delivery excellent ideas; what is better is to force them into the memory by demonstrable facts. One does not forget, or forgets less, when he has seen, when he has touched; and it is with this plan in view that veterinary schools were so brilliant in their exhibitions, even more so than those of human medicine and surgery.

The department of anatomy was there to tell us the rich means that the French schools have at their disposal. Casts upon casts—casts which are in wax, in plaster, in papier maché. They are colored; they look like nature; they are no doubt superior to natural pieces, fresh or preserved, which in many instances fail to be of any use to the teacher. Among those which belong to Alfort, there is one of an entire horse with all the muscles; one of the post-diaphragmatic visceræ, the large intestines, arteries and nerves of the head, of the extremities, etc. This application of casts in the teaching of descriptive anatomy is also applied to surgical and pathological anatomy, and it is with those that lesions at post-mortems are kept always ready to be looked at, to be touched by the student, whose mind is then far better impressed.

In this Lyons deserves a special mention. It shows a torsion of the small intestine, one of the folded, an invagination of the small intestine, a hernia of the same through the hiatus of Winslow, a traumatic pericarditis, tuberculous lesions and tumors, etc. At Alfort we saw casts representing actinomycosis, epithelial cancer of the bladder, a pyelo-nephritis of a steer, etc.

Besides all those, there were large collections of fresh specimens, of paintings, photographs, etc.

* * *

THE SANITARY VETERINARY EXHIBITION of the Seine was also very attractive, and especially the section where pathological lesions were placed. There was a splendid collection of casts in wax, reproducing with perfection various lesions. Each piece is painted in true natural tone and deceives to that point that they are by many taken as fresh pieces. Measly pork meats of various regions are imitated with surprising correctness, echinococci of the kidney, tuberculous lesions of all kinds, those of pleuro-pneumonia, of glanders, of foot-and-mouth disease, etc. Plates, paintings and photographs relating to meat inspection, are also exhibited in profusion.

In other words, there, as in the exhibits of the schools, the greatest and most useful show is that of those casts ; where the teacher can find excellent material for thorough demonstration.

* * *

FOREIGN VETERINARY EXHIBITIONS.—It is to be regretted that this international exhibition was not collected into one single building ; as the various countries were distributed, comparison was difficult. *Hungary* was well represented, and was a great rival with the French schools. The school of Budapest was well represented. *Russia* was principally remarkable by the exhibition of the laboratory of agricultural bacteriology. In *Austria*, like the preceding, the reproduction by casts of pathological lesions was complete and interesting. *Denmark* was represented by the laboratory of the Veterinary Institute of Copenhagen. *Belgium* sent maps of statistics of cattle. *Norway* exhibited maps relating to tuberculosis and anthrax. *Germany* sent photographic views of the Hanover school. *Roumania*, photographic albums of the Bucharest school. *England*, a small collection of shoes with some specimens of osteology. *Italy*, *Bosnia* and *Japan*, some photographic and anatomical specimens.

Of the *United States*, the only thing I saw was the bulletin of the University of the State of New York, giving a full account of the standing of veterinary education in the United States. Of course the Bureau of Animal Industry had also its special display, which was not the least among the foreign exhibitions. A. L.

THE BATTLE IS OVER—AND LOST.

The struggle of the veterinary profession for recognition in the Army of the United States was more vigorously waged during the years 1900–1901 than ever before ; every muscle was strained, every resource exhausted to obtain a favorable decision by Congress. We were so very near success that the REVIEW for January congratulated the profession upon the roseate prospects of complete fulfillment of its ardent hopes. Before that month had expired we found ourselves confronted by as ignoble a defeat as it was possible to receive.

The brief history of the effort which has resulted so disastrously dates back less than a year, when Senator Kenney, at the instigation of the Committee on Army Legislation of the American Veterinary Medical Association, introduced an amendment to the Army Efficiency Bill, creating a Veterinary Corps, which, although opposed by the Committee on Military Affairs, passed the Senate May 4, 1900, by a narrow margin. At the Detroit meeting of the A. V. M. A. the committee made a full and vigorous report, urging united effort for a last strong pull, giving the members the assurance of vivid prospects of success; and never was there a more loyal response from men working unselfishly for a grand purpose. The association supported the committee morally and financially, and from every section of this country the profession stood solidly together and stretched every nerve to fulfill the hopes that had been engendered by the favorable action of the Senate, and the assurances emanating from the members of the House. Nor were the committee or the profession over-confident, for they had previously tested the friendship of the high officials of the War Department, and felt that they had little to hope for from that quarter. It is true that various members of the profession had preferences as to the form of advancement which the army veterinarian should receive; some believed that the demand should have been more modest, that an entering wedge of simple rank would have given greater promise of success than the establishment of a corps, with high ranking officers and divorcement from the Adjutant-General's authority; but they were evidently in a minority, and it was conceded that a house divided against itself must fall, and, throwing aside their individual views, struck out for what seemed likely to receive official sanction. It is unnecessary here to recite the efforts which followed the adjournment of the meeting at Detroit. The position of the association was endorsed by State and local associations, every

Representative and Senator was besieged with appeals from their veterinary constituents, and as a proof of the efficiency of that united effort when the bill reached the House of Representatives on Dec. 6, notwithstanding the bitterest attacks of its enemies (see January REVIEW), it passed by a vote of 72 to 80. Upon technical grounds the amendment which had passed the Senate eight months previously, was, with the other provisions of the Army Reorganization Bill, brought up for discussion and decision again in the Senate, and when the January REVIEW went to press the bill was awaiting the action of that body. It was fair to assume that the Senate, whose *personnel* was little changed from its constitution of last May, would be consistent enough to stand by its declared policy, and especially so when a canvass of its august members showed a clear majority in favor of the Veterinary Corps. We are assured that enough Senators had pledged the committee of the A. V. M. A. their support to justify the prediction that the amendment would pass beyond the shadow of a doubt. But nothing was taken for granted. Two members of the committee (Chairman Salmon and Secretary Huidekoper) were continuously upon the ground, while members Pearson, Clement and Lowe were lending efficient aid from a distance. Just at this point the fine hand of the War Department was suddenly brought into action, through alarm at the unsuspected strength shown by the veterinarians in the two Houses of Congress, and they worked upon Secretary Root with so much success that he came out flat-footed in violent opposition to the bill, sending to the Senate on the morning of January 7 (the day of its consideration) a vigorous protest, supporting his contention by a semi-official letter of the Secretary of the New York State Veterinary Medical Society, both of which received wide publicity in the morning papers of the Capital and the country. Alarmed at the danger of Secretary Root's bomb, many telegrams from veterinarians were hurried to the Senate chamber, in the hope of counteracting the effect of the blow; but, alas, the mischief was done. The amendment was beaten by a vote of 43 to 5.

A hope yet remained that the conference of the two houses would give the veterinarian the rank of second lieutenant, if the corps was lost. In fact, the Secretary of War seemed rather to favor it, and many Senators who bitterly opposed the formation of a corps, conceded the justice of rank, and our champion, Senator Gallinger, offered an amendment embodying that proposition, which was promptly voted down, and the veterinarian of the United States Army remains as he was, a civilian employee, without rank, dignity, authority, or respect beyond that which is accorded to individuality.

The Committee of the A. V. M. A. have worked so valiantly, intelligently and indefatigably, that the sincere thanks of the profession will not be withheld from them on account of the failure of their efforts at the eleventh hour. They have already issued a preliminary report, setting forth a complete history of their stewardship, and close the document by the Phœnix-like statement: "We will at a later time render another report and suggest an outline for future action."

SOME IMPORTANT FUNCTIONS OF ASSOCIATION WORK.

The new constitution and by-laws of the consolidated State association of New Jersey, adopted January 10th at Trenton, create two important committees—a Public Health Committee and an Animal Industry Committee—the work of which, if intelligently conducted, which we have no doubt will be the case, will be of incalculable benefit to mankind and to the animal industry of the State. These two committees, we understand, have been established at the suggestion of President-elect Lowe, which indicates that his administration will be along scientific and advanced lines with a view to applicability and practical usefulness.

It is made the duty of the Public Health Committee to investigate, advise and report on animal diseases, animal foods, sanitation and other matters relating to and concerning the public health. The Animal Industry Committee shall investigate, study and report on all practical problems and questions relating to the breeding, maintenance and utilization of animals with a view to fostering and placing animal husbandry, in all its phases, upon a more scientific, economic and profitable basis in that State. This important branch of veterinary science has been left almost entirely to the layman to manage the best he could, sight being lost, in many instances at least, in the practical value of a scientific application of the physiological laws governing the animal industry.

DR. D. E. SALMON, Chief of the Bureau of Animal Industry, has been engaged in a lively discussion upon the subject of the tuberculin test with Hon. John Dryden in recent numbers of the *Breeder's Gazette.* Unfortunately this usually sound stock paper entertains some very dangerous views upon the subject of tuberculosis, the dissemination of which will render the systematic control of the disease by the Government more difficult, since it greatly underestimates the contagious character of the malady. A campaign of education, carried on through farmers' institutes and the public press, is the surest method of placing the subject before stockmen in its true light.

ORIGINAL ARTICLES.

MAMMITIS.

BY W. L. WILLIAMS, PROFESSOR OF SURGERY AND OBSTETRICS, NEW YORK STATE VETERINARY COLLEGE.

Read before the Genesee Valley Veterinary Association, Rochester, N. Y., July 13, 1900.

It is neither the purpose nor desire to offer under present limitations a full discourse upon so important a malady as mammitis nor to present anything very new or remarkable. Things appear differently according to the position from which they are seen, and it is only by observing an object from every possible point of view that we can secure a perfect impression of it, and it is merely hoped to offer here a few old ideas from what may possibly be to some of you a new vantage ground and perchance renew an interest in an old and important theme in the work of the every-day veterinarian.

For our purposes we shall look upon mammitis as wound infection, not theoretically, though that is frequently the case, but practically. The "wound" consists of the delicate lacteal cells lining the alveoli, the more protective and older of which are shed at the period when mammitis is most prone to occur, leaving a surface little less resistant against infection than a real wound; the orifice in the teat serves to maintain communication with the exterior, and the milk within the gland, milk sinus or cistern, represents in our plan the blood or lymph poured out into the wound cavity, acting as a foreign body and serving as a nidus for bacterial multiplication, upon which the living, bactericidal tissues can exert but little influence. We shall enter into no argument as to the correctness of this view, since this is not essential to our purpose.

Upon this hypothesis mammitis may be caused by any of the known pathogenic micro-organisms capable of causing wound infection in the ordinary technical sense, such as the various pus-forming streptococci, staphylococci and bacilli, with the occasional addition of special forms like actinomyces and bacilli tuberculosis. So far as known any bacteria capable of inducing wound infection is alike competent to produce mammitis, and conversely any of the micro-organisms found in mammitis are probably capable of infecting wounds.

Viewing the mammary glands of domestic animals as seats for wound infection they offer interesting variations and resemblances in the different species. As in other organs mammitis occurs more frequently as the milk producing qualities are intensified by breeding or feeding, so that it is observed most commonly in ruminants (cow, goat, ewe), and far more frequently in the dairy than in the beef cow.

We have suggested that the milk retained in the udder might be compared to blood or lymph extravasate in a wound, in which case the larger the volume of milk retained in a body the greater the source of danger, and we find this borne out again by our observations that animals having commodious milk cisterns like the cow, goat, and ewe suffer most frequently and acutely from mastitis, although otherwise more immune against wound infection than some other animals. Franck has also pointed out that in udders possessing milk cisterns the infection is general in that division of the gland emptying into the infected cistern, so that in the cow usually an entire quarter is infected, while in carnivora the infection may be limited to a lobule of the gland. Udders without milk cisterns are notably vulnerable to carcinoma, sarcoma and actinomycosis, thus suggesting that a large quantity of milk in a cistern where it plays the part of a foreign body in relation to infection invites acute purulent disease, while in the absence of this the more chronic and permanent infections are liable to occur.

The method of infection may vary, and as Vennerholm (Bayer and Fröhner's Handbuch, B. II., Theil III.) and others hold, may be through the medium of the blood or lymph stream or through the teat orifice. The infection of the udder by means of the blood or lymph stream, like in ordinary wound infections, speaking from a clinical standpoint, is well-nigh unknown, except perhaps tubercular mastitis, and we shall therefore not consider this phase of the question further.

As in ordinary wounds the infection occurs almost always by methods readily understood, through the teat orifice, which from our point of view represents the wound opening. Aside from the predisposition to mastitis owing to extreme development of the milk glands and the presence of a milk cistern, we should expect, and do find, the affection most common in those animals the teats of which most frequently come in contact with putrefactive substances, such as rapidly decomposing excreta, retained placenta and the like, and these conditions are best filled by ruminants, the prominent inguinal udder with its long teats being unusually exposed to contact with infective material while the animal is recumbent, the long teats being compressed, bent, twisted, possibly even somewhat opened and not rarely actually wounded.

In the quadruple udder of the cow, the posterior quarters being more exposed, naturally suffer most.

The origin of the infection, as in ordinary wounds, varies greatly. First of all, we must recognize the presence almost universally within the udder of bacteria capable under favorable conditions of inducing disease.

The popular notion that milk within the udder is sterile has been quite thoroughly disproven, and it has been found by investigators, among whom we may name Mr. A. R. Ward, Cornell University, that the active udder is rarely if ever wholly free from bacteria, the flora being extensive and including streptococci, staphylococci, and bacilli of varieties only awaiting favorable conditions to demonstrate their pathogenic power. These we liken to the bacteria found living upon the patient's skin ready to generate inflammation upon the occurrence of an injury to the part. They are in fact closely allied to skin bacteria. Aside from this inevitable danger, the contact of the teat orifices with putrescent dung and urine when the animal is recumbent, not infrequently perhaps even the introduction of a soiled piece of hay or straw through the orifice into the milk cistern, the contact with the teat openings of decomposing retained placenta, the trickling down over the udder and teats of discharges in cases of metritis and vaginitis, or soiling the udder and teats with these discharges through the medium of the tail, all account in a general way for the origin of the disease. The presence of suppurating wounds on the skin of the teats almost always leads, as is well known, to severe mastitis, evidently by the micro-organisms finding their way to and through the teat opening. In the same way, cow-pox, sheep-pox, contagious apthæ, and other eruptive affections of the teats lead commonly to mastitis, not perhaps through extension of the disease itself into the gland, but by the secondary suppurative affection leading to infection through the teat orifice.

Viewing mammitis as wound infection, all cases are in a broad sense transmissible, but we find outbreaks of mammitis, especially in ruminants, which are known as contagious or infectious mammitis and which at times become enzoötic over a wide area and cause severe losses to stock owners, besides rendering questionable the wholesomeness of the milk supply. In any of the foregoing cases there is no essential bar to transmission from one animal to another, and frequently we note clinically the extension of mammitis from one quarter or half to another, evidently by the same but more concentrated means by which it could be carried further to other animals either near or remote. In the so-called contagious forms, so far as known, the infection possesses a more marked preference for the milk gland as a habitat and acquires a degree of virility which greatly favors transmission, and the means which might occasionally carry infection under ordinary conditions now becomes an effective and common bearer of contagion from infected to healthy, so that infected bedding or floor may answer, or the tail may transplant the infection from cow to cow, while the milker carries the disease from affected to healthy on his unwashed hands, or if this is not enough, uses milk from an infected cow to moisten the teats of a healthy one and transmits it in this way through the milk. In a recent outbreak of mastitis in ewes, investigated in our clinics, it was found that the lambs were puny and emaciated, and upon close examination it was observed that they had a pustular eruptive affection of the lips and nose, caused apparently by streptococci, which where not distinguishable from those found in the gangrenous udders of the affected ewes.

Here then we had good clinico-bacterial evidence of transmission from lamb to ewe, and *vice versa*, in nursing.

If we carry our comparison further we have an exceedingly vascular glandular tissue enclosed within a firm sheath of yellow elastic and fibrous tissue from the abdominal tunic, which once the parenchymatous tissue becomes engorged or inflamed the investing aponeurotic capsule prevents yielding to the swelling, leading to compression of the inflamed tissue with impairment of circulation. The channel through the teat serving as an exit for wound secretions, while dependent, is anything but free, clots occluding the passage, while higher up the swelling of the gland tissue closes the milk ducts. The inflamed part is also dependent to an injurious degree, which can not be materially modified by changing the posture of the patient, nor have we yet succeeded markedly in fostering a better circulation by mechanical support of the gland.

The symptoms are ushered in usually by an abnormal condition of the glandular secretion, the milk may be clotted, watery or tenacious, odorless or fœtid, white, yellow, bluish or, if containing blood, reddish ; in gangrene it becomes chocolate colored, the amount is decreased in varying degrees, in many cases to an almost or complete cessation, which may prove temporary or permanent. Microscopically it consists of clots of casein, decreased amounts of casein, fat and sugar, increase of salts, sometimes red blood cells, generally pus cells, and bacteria in abundance and of various kinds.

The color of the skin covering the affected gland as in wound infection differs, in some forms it is unchanged, in others there appear varying degrees of redness, according to the intensity of subcutaneous inflammation, and when gangrene threatens or becomes established, the color becomes a dark livid or black.

Swelling may be absent throughout the attack, especially in a common form of so-called contagious mastitis of cows, the "gelber galt" of the Germans, while the other extreme is observed in acute gangrenous mastitis of cows and ewes, where the affected parts swell rapidly and extremely, the swelling extending to the surrounding parts, as the perineum, inferior abdominal walls and thighs ; the swelling of these adjacent parts partaking chiefly of an œdematous character. Between these two extremes every degree is observed, the character varying from a rather yielding, œdematous swelling in acute cases, to firm, hard schirrhous masses seen in chronic mastitis of cows and the so-called botryomycosis of the udder of the mare.

The local temperature, as revealed to the touch, is as variable as the swelling or color. Usually there is well marked heat, which may be very intense in acute cases, but frequently absent in chronic attacks and in the "contagious mammitis" or "gelber galt."

The advent of gangrene, if the skin be involved, is indicated by coldness, usually accompanied by moisture of the parts and detachment of the cuticle upon touch, but if the gangrene is confined to the deeper parts of the gland the skin may not reveal its presence in this way, though usually the teat of the affected gland gives early indication of the processes taking place within.

Pain in the affected gland varies and is differently expressed. Usually the animal resists milking or the nursing of the young, by moving or kicking, hesitates in severe cases to lie down, and walks as if lame in the leg on the affected side, or with a straddling gait, when both sides are affected.

The constitutional symptoms offer even greater variations than the local changes and consist essentially of the symptoms of wound infection. Constitutional symptoms are frequently absent, notwithstanding grave local disturbances, even to the formation of abscesses and gangrene. They include changes of body temperature, including fever or elevation and subnormal temperature in coma or collapse, and changes in the circulation, usually a marked increase in rapidity of the heart beat with either increase or diminution in the fullness of the pulse, while respiration behaves in rather close conformity with circulation. The digestive system suffers early and severely. In ruminants the muzzle tends to become dry and hot, and rumination ceases. The appetite is depressed, bowels torpid and constipated, or diarrhœa is present. Metastatic inflammations occur in various joints. Paralysis as a result of toxæmia is occasionally observed in the cow.

The course may be acute or chronic. I have observed death in ten to twelve hours, while many cases drag through weeks or months. Usually it extends over a period of 5 to 15 days.

The prognosis is grave. The so-called recovery or resolution is largely theoretical. Not only is the activity of the affected gland generally diminished, but there is a constant tendency to recurrence with each calving. Occurring usually a few days after parturition, mammitis brings about a serious diminution of milk secretion, for that milking term at least, frequently destroys the function of the affected gland permanently, causes great emaciation, renders the milk from other portion of the gland unsafe for human food during the disease, and not infrequently causes the death of the patient.

The treatment constitutes one of the most perplexing problems in veterinary surgery.

Viewing mammitis as a wound infection, we at once turn to disinfection as the fundamental principle of treatment, and our entire energies need be directed to the one end. We have compared the milk within the inflamed udder to the lymph and blood within a wound, and naturally we would wish to remove this as promptly, frequently and perfectly as conditions will permit, the same rule applying with equal force to pus or other wound secretions. It may be milked out in the usual manner, but if very much clotted it may be advisable or necessary to dilute and break up the clots by injecting into the gland a 1 per cent. soda solution at 100° F., to which may be added 3 to 5 per cent. hydrogen peroxide. Fomentations and massage also facilitate its withdrawal. This mechanical removal of abnormal milk mixed with disease secretions, removes bacteria and bacterial products in a degree worthy of consideration, but the chief disease changes and absorption of morbid products are taking place within the acini of the gland and the deeper structures and are not so favorably affected by the milking process as desired.

It has been proposed to disinfect the inflamed gland by the injection of antiseptic solutions, and various preparations have been recommended or proposed without thus far demonstrating their practicability. Sublimate, carbolic acid, boric acid and others have been used, with apparently the best results from a weak solution of boric acid, which really amounts to little more than sterile water, and has led some writers to suggest that the washing of the milk cistern and sinuses by means of the sterile water and milking this out constitutes the real advantage of such treatment.

Two serious obstacles stand in the way. First, the irrigation is incomplete, as the fluid cannot be made to penetrate far into the gland, the swelling of the lacteal cells filling the acini. Only 1 to 2 pints usually can be injected at a time into a quarter of the udder of a cow, and this we can not imagine as coming into intimate contact with the great secretory area. Second, antiseptics irritate the gland seriously, so that the more common members of this group of drugs dare not be introduced into the udder of a strength to cause the death or check the multiplication of bacteria.

Corrosive sublimate, carbolic acid, etc., are not allowable unless in cases of extensive suppuration where the solution comes in contact with virtually or actually an abscess wall. Peroxide of hydrogen has given us the best results among this class of agents. But we must confess that the drug theoretically superior to all others, we have neither tried nor seen an account by others of its trial. It seems clear to us that the best preparation possible for this use is iodoform, which being comparatively insoluble would remain in the gland for some time, gradually liberating iodine and inducing no irritation, but acting as a local anodyne. It should be injected dissolved in one of the lighter fats, olive oil, liquid vaseline, or butter fat. We hope to give this remedy an early test.

Disinfection by external application—that is, by cutaneous absorption over the gland—has always held an important place in the treatment of mammitis. The skin now becomes the irritated part, if any, and any disinfectant which will not injure the cutaneous covering of the gland becomes available, while those which are most readily absorbed possess the highest value. So Bang and others extol highly iodine and camphor, while from the same standpoint others commend turpentine as an external application.

Indirectly much that is apparently done for other objects operates in a similar manner. Belladonna, hyoscyamus and other members of their group probably are in a degree directly antiseptic, but largely indirectly by stimulating the vessel walls, causing their contraction and leading to a more effective circulation, always inimicable to the life of the germs of wound infection. Blood stasis on the other hand favors their growth.

Massage and fomentations tend in the same way to check bacterial production. For the same reason Vennerholm and many other writers favor the use of suspensories with poultices, while still others commend the application of various adhesive applications which in drying contract and tend to relieve congestion by mechanical support.

Systemic disturbances demand the practitioner's attention and it is questionable in many cases whether the local or constitutional treatment is the more important. We know that pathogenic bacteria largely lose their power of multiplication and of injury in the absence of their products, hence if the system can successfully eliminate these an essential arrest in the progress of infection has been made.

The eliminative agent recommended is purgation, and in the past this has been largely confined to the use of saline and oleaginous cathartics. While their value cannot be denied they are defective because of slowness of action in acute cases where time is all important.

More effective theoretically are pilocarpine and eserine, which act within ¾ to 1½ hours. They have the advantage of promptness, they can be quickly repeated until desired effect is had, and while stimulating the action of the bowels, at the same time arouses, with energy, excretion by almost every gland in the body, markedly the salivary and cutaneous, and it has appeared to us the milk glands also. These drugs have an effect closely allied to the hypodermic or intravenous injection of salt solution and the intra-mammary injection of Schmidt in the treatment of parturient paresis. This latter is, of course, not available in mammitis.

In a case of acute mammitis of all four quarters in a cow, following Schmidt's treatment for parturient paresis, where gangrene and death appeared imminent, the administration of pilocarpine and eserine in combination reduced the temperature from 106° to 103° F. in 3 hours, the tumefied udder had greatly relaxed, milk had returned, rumination had been resumed after several hours cessation, appetite and thirst had returned, the muzzle was again moist and the general appearance had changed from dullness and indifference to cheerfulness and a lively interest in her calf. We have no doubt but that pilocarpine and eserine promptly administered in small and frequently repeated doses will prove of very great benefit in acute mammitis. We would suggest as a dose for the cow 1½ to 2 grains eserine and 1 to 1½ grains pilocarpine subcutaneously, repeated hourly until the purpose is attained. Should these be unattainable we have little doubt that the intravenous injection of 2 or 3 pints of saline solution would answer a similar purpose.

Should these lines of treatment fail us, and suppuration or gangrene occur or fatal toxæmia threaten, operative treatment is warranted or demanded. An extensive abscess in a gland means its total ruin or at least practical uselessness; partial destruction generally inviting recurrent mammitis with each calving with special danger of infecting neighboring glands. As in any other abscess, free opening and dependent drainage are indicated, and for this there are two plans: first, a free incision through skin and dartos into the abscess cavity, parallel to the long axis of the teat, followed by appropriate treatment by disinfection and antiseptic packing; second, amputation of the teat at such a point as will afford sufficient drainage. The incision into the gland itself would be preferable in most cases, because when free it relaxes the dartos and thus relieves the pressure upon the inflamed gland. In chronic induration of the gland with emaciation of the animal a free incision through the dartos and into the centre of the glandular tissue, the incision extending from the highest point of the affected gland to the base of the teat, relieves the engorgement and acts in the same manner as a free incision into an infected punctured wound penetrating a firm aponeurosis. Such treatment is of course only admissible when hope of recovery of the gland has been abandoned.

When gangrene appears or the life of the animal is threatened, amputation of the gland is indicated, though possibly not always imperative, while in chronic induration, with unwieldy enlargement of the udder, amputation is frequently advisable because of the annoyance of the enlarged gland to the animal and the probability of recurrent attacks of inflammation. The general rule in reference to amputation would be to operate as soon as the gland has passed beyond reasonable prospect for recovery and consequent future usefulness, and threatens at the same time the animal's life or its value aside from the affected gland. The so-called botryomycotic mammitis of the mare generally demands amputation, as do also the neoplasms in the mammæ of the bitch.

This operation, not prominently described in English, is simple, comparatively safe, and its results usually highly favorable. The arrangement of the glands makes it practicable to amputate half or all the gland. In the cow the intimate connection between the two quarters of each side make it impracticable to amputate a quarter while the septum formed from the abdominal tunic between the two halves makes them readily separable. In gangrene prompt operation is demanded, while in botryomycosis, induration, etc., delay and deliberate preparation may be warranted.

Technique.—Secure the animal in such a position as to expose the affected gland freely (dorsal or lateral decubitis), anæsthetize the animal, cleanse and disinfect the operative area ; if the skin is healthy, preserve enough to cover the wound area after operation (if gangrenous remove all gangrenous portions), and make a free incision under antiseptic precautions through the skin at the lower part of the udder from before to behind, the length of the gland, the line of the incision being lateral to (outside) the teat, and follow this by a second similar incision, beginning and ending at the same points, but passing on the median side of the teat, thus isolating it in the centre of an ellipse the extent of which should vary with the size of the gland. The skin is then detached with the fingers or a blunt instrument toward the median raphé and upwards toward the thigh. Bleeding vessels are seized with compression forceps, cauterized or ligated. The only vessels demanding ligation are the subcutaneous abdominal vein and the small artery accompanying it in front, and the chief vessels of the gland, the external pudic arteries and veins emerging from the inguinal ring; the others can be controlled by cautery or temporary compression.

After the skin is well detached, the capsule of the gland (dartos) is cut through along the median raphé, and on the external side between the superior surface of the gland and the abdominal walls, and the detachment of the gland continued by tearing through the loose connective tissue until finally the gland has but one attachment, the bundle of inguinal vessels composed of pudic artery and vein, with nerves and lymphatics. These are long and extensible and should be ligated *en masse* high up against the ring and then cut through as low as possible, leaving a long stump from which the ligature will not slip. After severing the vessels and removing the gland a separate ligation of the pudic artery is a wise precaution as severe after hæmorrhage sometimes occurs. The ecraseur is not to be trusted as a hæmostatic for the pudic vessels. If both halves are gangrenous, remove the second half in the same manner. The wound should be closed as well as admissible with sutures, and drainage provided by drainage tubing or antiseptic gauze or packing, followed by ordinary treatment for wounds. We should bear in mind that amputation of the udder is by no means so serious as would be thought at first glance. Encapsuled within the aponeurotic sac derived from the abdominal tunic the gland has little intimate connection with adjacent tissues, so that in amputation but little violence is done to important tissues. We had occasion recently to remove the entire gland from a 2-year heifer, on account of gangrene. The udder was enormously swollen and would weigh about 40 pounds, was black, cold, œdematous, and from each teat a dark brown fluid constantly dropped. The eyes were sunken and listless, the pulse imperceptible, the gait tottering, and every indication pointed to early death. She was cast, the parts disinfected, and the entire udder, skin and all (the skin being gangrenous), was removed, leaving an open wound surface of 3 to 4 square feet. The wounded tissues were extremely fœtid and attracted swarms of scavenger flies. Alcoholic stimulants were administered and the wound treated by frequent washing with 1-1000 sublimate solution. The patient rallied at once and made an uneventful, though necessarily somewhat tardy recovery. The case serves to demonstrate the value of the operation. The patient is of course useless for milk purposes, but available for beef, and were she a valuable pedigreed animal could still be used for breeding. When but one-half of the udder is removed the animal will yield a fair amount of milk, more than one-half, probably 75 per cent. the normal amount.

In cows not valued for breeding and where calving would invite recurrence, the animal should be spayed, and when through milking, sold to the butcher.

The control of outbreaks of infectious or enzoötic mammitis should be based wholly upon disinfection, the process being thorough in every detail and applied to every possible source of danger. Affected animals should be kept apart from the apparently healthy, milked and cared for by separate persons and utensils if possible, and the secretions from the gland should be effectively destroyed. If separate quarters, caretakers and utensils are not available, the affected cow should be milked last. The stable should be kept clean, dry and disinfected, preferably with dry disinfectants, while the milk vessel, the udder and the milker's hands should be thoroughly disinfected severally, that is, the milker's hands and the milk pail should be disinfected after milking each apparently healthy cow in an affected herd, to guard against infection from an apparently healthy animal which may be actually diseased. Young animals which are permitted to suck, should receive attention as disease bearers. In the severe outbreak of gangrenous mammitis in ewes, which we have mentioned above, it was found that the lambs were suffering from pustular eruptions of the nose and lips. The free application of silver nitrate to the ulcers and bathing the diseased lips freely with tr. iodine and glycerine, equal parts, promptly arrested the mammitis in the ewes. This outbreak suggests that in every case we should seek for the source of infection and attack it. In ordinary mammitis, the general rules for controlling the so-called contagious species should be applied to the more limited field to prevent the affection from spreading from gland to gland.

SWINE TROUBLES IN CLINTON COUNTY, N. Y.

By J. A. McCrank, V. S., Plattsburgh, N. Y.

Read before the New York State Veterinary Medical Society, September, 1900.

It has always appeared to me, that according as man's ingenuity lessens labor, by means of electricity, machinery, etc., our Divine Master, ever fearful of our falling into sin or becoming disobedient to his holy will on account of idleness, furnishes us with other grades of labor. Years ago our forefathers, ignorant of the advantages of modern methods, were pleased to cut their crops with the reaping-hook, thrash it with a flail, and clean it with the old-time hand-fan. Our grandmothers hackled, spun and wove into linen the flax from the field. Now all this work is done by machinery. During those olden times none of us have records of our forefathers laying aside the hook or the flail to give battle to the Colorado potato-bug, nor of our grandmothers leaving the wheel or the loom to save the orchards from the raids of the army or tent caterpillar. So during those days of hard labor the farmers and hog raisers of Clinton County experienced no troubles in raising hogs; so free was the hog from disease that no attention was paid to its selection, its feed, or its sanitary care. Any type of hog was good enough for pork. No attention was paid to what herd it was taken from; and as for feed, anything was good enough for a hog; the hovel it was kept in was little better than a cesspool.

In this manner our people worked on until machinery took their places in the field and elsewhere; man was obliged to stand idly by, employing neither body nor mind. But such is not to be our lot, for Providence sent disease among our herds of hogs. Our minds, until then easy, were turned toward the herds of swine. We began to think, to read; observations began which brought about a revolution. We now select and breed with much care; we use great precautions from what herds we buy and breed; we are very careful in choosing and curing the food; the old-time hovel, 4 feet high, 7x10, is replaced by large, high, well-lighted and ventilated rooms, which are cleaned and whitewashed with care.

The disease which made its appearance among our hogs we call "Hog Cholera," for want of a better term, I suppose; but we claim that we have very good grounds for so terming it, though I think we have other troubles among the hogs brought about from dietary disorders.

In 1891 Mr. A., a farmer near our village, visited me, complained that he had been losing a great many hogs in past years, and wished that I would pay a visit to his herd and suggest measures to save his pigs and stay the raids of disease. I visited the herd, found some dead, others dying, etc. I made several post-mortems, and from the lesions I found, my attention was directed to the feeding, for I believed at that time that there was no hog cholera in the east. On investigation I found that the feed was swill gathered from the hotels and boarding-houses of Plattsburgh. The sanitary surroundings were not good, and in general the hogs were poorly understood and cared for. At my suggestion the animals were divided into three divisions. Division 1 was made up of all the healthy animals, division 2 the suspicious ones, and division 3 the diseased ones. Each of the apartments was now clean, large, well lighted and ventilated. Division 1 was fed on good food, divisions 2 and 3 were fed on the swill as gathered. I wanted to save those in division 1 and to prove the food to be at fault. Results: Of 41 in division 1, 4 died, 3 remained of 11 in division 2, one scrawny skeleton survived 9 in division 3.

We congratulated ourselves with those results, for Mr. A. saved very few hogs from the raids of this disease in past years. The next year, 1892, about the same time of the year, October and November months, the disease renewed its raids. This time we did not meet with such success, for very few hogs were saved. We visited the places the swill was gathered from and made a request that no soaps should be allowed in washing dishes. The result here was gratifying, for our hogs seemed to improve for a time, but we soon learned that the help about those houses bought soaps with their own wages, and our hogs again began to drop away. The third year we had hogs and cattle change sheds, reduced the numbers, boiled the swill. Our losses became gradually less yearly. Last year we lost none on that farm. We cannot speak for this year yet, although some forty hogs are feeding there at present.

In 1897, the Hotel Champlain Company, thinking that money was wasted, because the refuse from the dining rooms and kitchen was carried out and dumped into the lake and elsewhere when the neighboring piggeries did not want it, bought 100 hogs; a large field was set aside for them, then this refuse or garbage consisting of, as you all know, was brought to the fields in loads and dumped. The weather was hot during the summer months, and this garbage spoiled and very soon became unfit for even a hog to eat. Sickness broke out in the herd, death after death occurred, I was called in, I made a few post-mortems. I gave my experience as to cause and probable results. Of course I suspected soaps in dishwashings and impure foods. The caretaker, manager and myself visited the dishwashing corps to ask that soaps should not be used. We were met by a storm of opposition so violent that I vacated my position of advantage and left the building, the others escaped after me. We concluded to sell the herd. Consequently cars were backed up at the depot, the healthy appearing porkers were loaded on and shipped to the markets of New York City, while the sick ones remained to die as they would.

I believe that those two herds suffered and died from the results of improper care and impure food, acting on the whole animal system.

Mr. D. owns a meat market in our little village, he has his own slaughter-house in the vicinity, where he keeps a great many hogs, feeding them on the offal from the slaughtered animals. Disease broke out in 1892 and over $1500 of hogs were destroyed, leaving none. In 1893 he moved his slaughter-house to other fields, thinking the old field and surroundings were at fault; he bought and gathered together some 80 hogs. The disease renewed its attacks again; we had them driven into the country about five miles further, put them into a wooded lot and changed the food. They were 300 yards or more from farm buildings or other hogs. Their food was good farm produce, but with all our trouble we saved two, I think; and, what is very strange, while they were thus dying the farmer's own hogs contracted the disease and all died. Both men now quit raising hogs for two years. Of late years they each raise a few only; occasionally one or two take sick and die, and so far as I can see they died from the same disease as did those of 1892 and 1893. They get no village swills, consequently no soaps. It appears to me that the disease does not cause such wholesale destruction now because fewer animals make up the herds.

Mr. F. owns a bakery in our village. He usually kept 14 or 15 hogs, which were fed on the sour breads from the shop, the stale breads, etc., from the store, slops from his own kitchen, only he denies that any soaps found their way to the pigs. This herd was kept dry and clean, with abundance of sunlight and air, though they were cramped for room, I believe. In 1891, my first year in Plattsburg, I was approached on the matter. I made post-mortems on all the animals as they died. The lesions which presented themselves led me to think that there was some intestinal disturbance; I considered that the food was not at fault, the sanitary conditions could not be bettered, so I pronounced the trouble to be some specific hog disease. At my suggestion fewer hogs were kept, in order to see what changes might be wrought. Mr. F. raises now 4 or 5 hogs and has no trouble. He feeds as before.

Mr. M., a wealthy farmer in our district, keeps from 80 to 125 hogs. He, too, gathers swill from hotels and lake transportation companies. The disease worked terrible havoc with his flocks. The sanitary conditions of his buildings are not even to-day good. I have worked hard in his herds, for he asks me to take full control of his yard, to do as I like with sickly animals. We change pastures and feed with gratifying results for a time; these changes seem to wear off and death repays us for our efforts. I believe to-day that this man will be obliged to keep fewer hogs in order to rid his herd completely of this disease. Pardon me now if I step farther, possibly a step too far. We think we are breeding immune animals. The sows which survived the disease, and they are very few, are considered proof against the disease. They are bred, and rumor says the young will not take the sickness. I believe there is something in it. Very few animals die now in this herd, but, if a new hog is bought and exposed with the others in the herd, even if none of them are sick, he will take the disease and die.

In 1897 an outbreak of this trouble occurred in Keeseville, a neighboring village. The herd belonged to a hotel man who fed slops from the kitchen as well as other foods from the farm—good food, I considered. They were herded in the basement of a large barn into which manures were thrown. They exercised in a large paddock adjoining the barn and on a hill-side. The animals had abundance of air and light, a dry place to sleep in, although they might lie and root among manures. About 40 young and old animals made up this herd. When they began to die I was called. I made a few post-mortems, killed a few sickly ones. I recognized our hog troubles at once, and as I had been corresponding at the time with Drs. Williams and Moore, of Cornell, about my terrible afflictions up in Clinton County, I crated two young ones which showed signs of the trouble, but strong enough to stand the journey. I expressed them to Dr. Moore. I was satisfied that I had hit the nail on the head now. The pigs were shipped on July 19th, 1897. On July 22d, I received the following letter from Dr. Moore, saying: "The pigs arrived last night, and when taken from the box crate they ate with a relish. They are unsteady in their walk, otherwise appear to be very well. They will be kept under close observation until further symptoms develop." After one month's anxiety for further information, I received the following welcome letter, dated Aug. 18, 1897. "One of the pigs you sent us died from chronic hog cholera on July 30th, and the other died this morning. After receiving them they improved for some days and I thought would recover, but now they are both dead. There was no paralysis in excess of that found in hog cholera."

Being satisfied now that this Keeseville herd was infected with hog cholera, I wished very much to know if Mr. M.'s herd was not the same, for I could discern no difference in postmortem lesions. So on Nov. 1st, 1897, I made a post-mortem on a hog recently dead, secured a portion of the lung, liver, spleen, kidney and intestine, cured them as well as I knew how and sent them to Dr. Moore.

On Nov. 4th I was rather disappointed to receive the following letter: "I am sorry to say that after all your precautions, the tissues were badly decomposed when they arrived here. They were evidently infected with putrefactive bacteria before they were packed. The intestine suggested in its appearance hog cholera. It may, however, be some dietary disorder." Unsatisfactory and all as this last venture proved to be, I gathered some consolation that the intestine suggested "hog cholera" and claim yet that this disease invades the premises of Mr. M.

We consider our Clinton County swine troubles to be contagious, and toward that end I will give you just a few more instances.

Our County Fair, which is being held in Plattsburgh this week, is attended by animals from all parts of this State, Vermont and parts of Canada. Prize herds of cattle, sheep, swine, poultry, etc., are exhibited there. In 1898 a prize herd of hogs from Fort Edward or that vicinity was shown there. They were placed among our own local herds. During Fair week two of this herd died of our supposed hog cholera; they were buried on the grounds, I believe. Since that week four of our farmers have lost heavily from the raids of this disease. Those herds were heretofore free from all diseases. We think that the disease was contracted from too close proximity with this infected herd. We are now battling with the managers of the Fair to prevent foreigners exhibiting at our fairs as well as our locally infected herds.

Mr. Clarke had a brood sow, mother to several choice young ones. Mr. Clarke's herd was heretofore free from disease. The young pigs had been sold to various farmers about the county, and remained on the mother until old enough to be taken away. A few nights previous to their being moved the mother broke out from her yard. Leaving the young ones at home, she visited along the way and met with Mr. M.'s herd, which were herded on a pasture by the roadside. After about half an hour's visit, I believe, she was driven home. In a few days the young ones were fetched to their respective homes; time passed, the young pigs and mother took the disease—all died.

Mr. M. bought a shoat from Mr. Sawyer, whose herd is free from this disease. The hog was taken to Mr. M.'s home and put with other animals. Next day Mr. Allen bought this young fellow from Mr. M. It was now moved to Mr. Allen's yard in a pen by itself, but could nose through to Mr. A.'s own hogs, which were free from the trouble. In two weeks' time this young fellow fell ill and died. Mr. Allen saved one of five of his own hogs. On those grounds we consider the disease contagious.

Symptoms.—While I am of the opinion that more than one disease has been described so far in my paper, I think one set of symptoms with variations describes both. Sometimes the animal is noticed becoming emaciated before ceasing to eat; others refuse food at once, but in both cases they like to suck at water or liquids, apparently afraid or unable to swallow. They shiver and bury themselves in the litter, and will not move unless urged very much. There is lack of control of the hind parts, an unsteady gait, a peculiar sneezing cough is noticed, redness of the skin about ears, belly, inside of legs. Diarrhœa sets in early and continues until death, but often I have met with constipation replacing diarrhœa. The fæces are of a very black color, with a bad odor and ejected apparently with pain. Toward death these red spots become darker. The animal becomes unable to get up and remains so until death. There seems to be soreness of the body, especially over the abdomen.

Post-mortem.—I made post-mortems on nearly 50 per cent. of the deaths. In fully 90 per cent. of the cases the skin about the ears, abdomen, thighs, inside of legs were marked with blackish spots; in very few cases there were no external discolorations. Some cadavers were very much emaciated, while others were plump and fat. The intestines in many cases contained a sticky black fæces of bad odor. At other times it contained a dry black excrement, which cracked like a piece of clay when an effort was made to bend it, and as if the stomach and digestive apparatus were unfit to do their work. I have found where a grain of oats, barley, or wheat was swallowed, uninjured by the teeth, it took root in the contents of the intestine, grew to be three inches long, dying for want of air and moisture. In all cases there was inflammation of intestines of a more or less marked character. Gangrene had often set in before death; at other times I have found an ulcerated patch of intestine containing this jelly-like stool. The mesenteric glands are enlarged and hæmorrhagic. The stomach contains a mass of undigested material; the liver is solid, spleen often enlarged, kidneys about normal. The lungs are always more or less affected, the pleura is thickened, the bronchi and bronchioles are inflamed and contain a frothy mucus; the lymphatic glands throughout the body are enlarged and hyperæmic.

Treatment.—We observe preventive measures and sanitary rules. When we have large numbers we divide them into smaller herds. When an animal appears to be sick it is taken away at once and put by itself or with the sickly ones. We will not buy from strange herds, neither do we want attendants from infected herds visit where the hogs are free from disease.

ENSILAGE POISONING?

By N. S. Mayo, Connecticut State Agricultural College,
Storrs, Conn.

In private practice, and particularly in State sanitary work, one frequently runs across apparently mysterious and undescribed diseases. The writer does not offer the following as a new disease, or an undescribed one, but it is a condition which the writer, although having considerable experience in live stock sanitary work, has never met before, nor have I seen it described in the literature at my command.

The writer does not presume to entertain a new and valuable opinion on the subject, but hopes he may receive information from those who have met with this condition, or have had a wider experience in the study of animal diseases.

May 11th, I was called to a large dairy farm near Hartford, to investigate a disease, which was attacking the dairy cows. One of the cows I found dead upon my arrival, one sick, and another taken sick ten hours later.

The symptoms were practically the same in the two cows observed, and from the description of the symptoms exhibited by the cow that died, as they were described by the owner, who is an intelligent and careful observer, I feel confident that the first cow suffered from the same condition.

What made the owner especially anxious regarding these animals was the fact that a year previous, at the same time of the year, he had lost four cows with what appeared to him to be exactly the same disease. All of the animals taken sick the year previous to the time of my visit died.

The first symptoms noticed were a loss of appetite, the eyes appeared bright, there was no lopping of the ears, the respirations were labored, the temperature normal, there was no pain, and no thirst, although the animals lapped the water very frequently; the cow seemed weak. There was a slight elevation of temperature, about 103, in the early stages, but later after the first 24 hours the temperature dropped below normal, ranging from 98 to 99; there was marked constipation, but later this gave way to diarrhœa.

The passages were not frequent, but were abnormally fluid; the heart's action was weak and rapid, there appeared to be no congestion or inflammation in either lung, and I was at a loss to account for the labored breathing.

In the course of 24 hours after the first symptoms were noticed, a passage of mucus from the nostrils was noted, and this increased in quantity, and became purulent until a short time before death.

The animals lived about five days after the first symptoms were observed; towards the last they became somewhat delirious, and would push their heads against posts, or sides of the barn, even breaking the boards with the force of the exertion. The animals gradually grew weaker until death took place, or they were destroyed when there were no hopes of recovery. The symptoms and progress of the disease were practically the same, and the owner assures me that the four cows lost the previous year died with the same symptoms.

Autopsies made on all three animals, gave the following results:

The animals were well fed and in good flesh for dairy cows, the intestines were irritated, and severely congested in patches, the stomachs were also congested in patches, the manifolds congested and the food contained in the manifolds being abnormally hard and dry; the omenta were hard and stiff, and looked as if they had been taken out and dried; the liver was congested, the bile being thick and dark, and in abnormally large quantities; the spleen contained some hæmorrhagic spots; the kidneys and bladder were normal, as was the urine. The lungs did not collapse on opening thoracic cavity, and were found to be greatly distended with air, or gas (there was no odor to this), which had infiltrated into the cellular tissue to such an extent that the lungs completely filled the thoracic cavity; this accounted for the labored respiration, which had proved extremely puzzling. The mucous membrane of trachea and bronchial tubes was slightly congested, and the tubes were filled with large amounts of mucus; there were no parasites observed, either in the lungs, or other portions of the body.

The cerebral meninges were congested, as were the brains of all animals; this may have been due to the weak heart's action. From all three animals cultures were made on agar and gelatine, from the liver, heart, blood and lymphatic glands. Smear mounts were also made for examination. No pathogenic bacteria were found in any of the cultures.

The treatment adopted was a purgative followed by stimulants; but as the disease progressed, little was done except observe the symptoms carefully. An examination of the surroundings to determine the cause, if possible, was made.

Two of the cows stood side by side, the other was some 30 feet away.

There were 28 cows in the stable, confined in stanchions in two rows facing, with passage ten feet wide between them. These three cows happened to be in one row, but the year previous two cows had died from one row, and two from the other. The stable was well lighted, well ventilated, and dry, there being a basement below. Spring water was piped into the barn; the same water was used at the house, and seemed to be of excellent quality.

The ration consists of gluten meal, bran, and a small amount of corn meal, a good quality of timothy hay and clover was fed, together with ensilage. The ensilage was taken from a brick silo, 23 feet in diameter, and was of bad quality, being black and mouldy. The silo was so large that the feeder could only get over the surface once in two days, and then removed only about 1½ inches.

The cattle seemed to eat the ensilage readily. This ensilage was fed the year round, and was the only thing to which the disease could be attributed, so far as could be observed. The cows had been kept on the place for a year, and no new animals had been introduced. They were kept in the barn a greater portion of the time. The writer is not satisfied that the bad ensilage was the cause, but the reasons for attributing to it the bad effects are the absence of any other apparent cause, and that the disease occurred at the beginning of warm weather, when decomposition is apt to take place more rapidly, and from the symptoms observed, the opinion was formed that death was due to a ptomain poisoning of some kind.

Following directions, the owner cut down a section of the silo, and in this way could utilize the ensilage before it spoiled on the surface; that which appeared to be spoiled was thrown away, and no further bad results were noticed.

It should be noted, that if death was due to ensilage, why have not some other of the cows suffered from its effects?

The writer confesses to misgivings as to the true cause and nature of the disease. If any readers of the REVIEW can furnish explanation, either personally, or through the columns of the REVIEW, they will be gratefully received.

REPORTS OF CASES.

"*Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.*"

FOREIGN BODY IN STENO'S DUCT—ABSCESSES—RECOVERY.

By L. R. WEBBER, V. S., Rochester, N. Y.

July 6.—I was called to see a brown gelding with the history that he did not seem to eat as well as usual; also that the submaxillary glands were swollen. I examined him and found his temperature slightly elevated and a slight tenderness to the touch of the glands. I diagnosed influenza and prescribed febrifuges and ammonia liniment.

July 7.—Temperature almost normal; no more, if any tenderness, and eating better. Owner thought I had better see him next day.

July 8.—For all I could see was all right. Told owner he could use horse the following day.

July 9.—Owner called me, saying the horse was worse. Found temperature slightly elevated, and parotid gland swollen quite a little, but he was eating well. Had gland rubbed with ammonia liniment, and diagnosed distemper.

July 10 and 11.—Horse about the same, only swollen much more, and very sore. Put on blister of cantharides on 11th.

July 13.—Horse not eating, carrying head to one side, and swollen from base of ear, and filling submaxillary space. Still stuck to my diagnosis, but remarked when questioned by owner that it was out of the ordinary.

July 14.—Dr. Williams, of Ithaca, who was in our city, saw the case with me. He thought it was a distemper abscess; also thought it was out of the ordinary, but remarked that he had had such cases, and when they broke the whole bunch of horses in the barn came down with distemper. Foreign body in Steno's duct was suggested, but we finally came away with our minds made up that it was an abscess, *any way*. At this time it showed no sign of opening.

July 16.—Found it soft in two places; one, half way between base of ear and angle of inferior maxilla; another, in submaxillary space. I opened the lower place, and it contained a thin and very foul smelling fluid. I inserted my finger, and, to my surprise, took out a timothy head with about 1 to 1½ inches of stem, the head pointing upward. This opening not draining the soft place above thoroughly, I opened it and found it contained the same kind of fluid. My two openings connected, so I made connection larger. I now diagnosed it foreign body in Steno's duct. It healed slowly under antiseptic treatment, except in the extreme upper part of gland another abscess formed, about the size of an egg, which was lanced and treated. Henceforth the case did nicely and recovery became complete, the whole gland being destroyed.

TINCTURE OF IODINE IN FISTULÆ.

By T. J. PENCE, V. S., Troy, Ohio.

I have been a constant reader of the REVIEW for thirteen years. Would not be without it for twice the subscription price. I have learned a great deal from it, and now I think I can contribute something to the knowledge of others. I have discovered a cure for fistula in all its forms—head, inguinal, or any fistulous tract. It consists in the injection of the tincture of iodine to bottom of the abscess once in from five to eight days. I have cured fistulæ of both head and withers that had been running for months, and the horse was considered worthless, with from three to five injections. I now like to get fistulæ to treat since my discovery, while before I dreaded to treat them. I have never failed with this treatment to cure the very worst cases, and I believe that it is a specific.

I had a case in a mare with a running sore at the stifle for four months; it had formed a pocket ten inches down, outside of the leg. I opened the abscess at the bottom, washed it out with warm water; then injected tincture iodine pure into the cavity; held finger over opening below, pressed or worked medicine all through the cavity, and left some of the tincture to be put in after five days. The owner injected it one week afterward, instead of five days, and in two weeks from the time I opened it it was healed up, and now after four months is sound.

I could tell you of more than twenty parallel cases, but just one will suffice: A sorrel mare, belonging to a Mr. Geo. Young, had fistula of the head (poll-evil); had been treated by a cure-all gentleman of the neighborhood for three or four months; he had used a favorite prescription of his: turpentine, corrosive sublimate, etc., etc., until he had burned and eaten down the muscles and adjacent tissues until the mare could not get her head down to drink out of a bucket. Sitting on a chair I opened up each side, took out a half pint of dry flesh, washed it out well, put in tincture iodine, gave him some to put in every five days, and in three weeks the mare was healed up sound. There may be other medicines as good, but I have not found them out. I have long since believed that many fistulæ that would have gotten well if treated once in two to five days with this medicine were kept running by using the caustics too often and too strong. I trust others may have as good success with this treatment as I have, and that they will report their experience with it.

NECROTIC TESTICLE IN PIG.

By Francis Abele, V. S., Quincy, Mass.

Bought a ruptured pig with scrotal hernia. Operated at about six months old. One testicle was small and adherent. Cut into it. A thick, gray, grumous substance burst out. The nature of the contained material and the absence of rounded serous covering, the thickness of walls, etc. almost convinced me that the intestine was cut, but when atrophied epididymis was located, the true nature was discovered. It proved to be a necrosis of testicle, probably due to strangulation of blood supply.

POLL-EVIL AND ANTISEPSIS.

By Francis Abele, V. S., Quincy, Mass.

Horse had poll-evil. Abscess large and soft, ready to lance. Tissues about greatly swollen. Cast her, removed mane round about, cut out all skin over abscess, removed circular piece about three or four inches in diameter. This gave dependent drainage on both sides and plenty of room to get a plug in and wash out with a tent of cotton. Ordered that it be washed out once a day with tent of clean absorbent cotton in one cup of hot water with bichloride tablet, followed by cleansing with Oakland peroxide. The action of the latter attracted spectators regularly, so that the horse got plenty of treatment. It healed beautifully and, strangely enough, the scar does not seem to be over one-half inch in diameter.

PTOMAINE POISONING IN DOGS.

By Francis Abele, V. S., Quincy, Mass.

A kennel man took several dogs to walk for exercise one evening. All were in the best of spirits when put up for the night. On the next morning one was dead; a second had choreic actions and loss of use of legs; a third was having slight convulsions. Diagnosed enteritis, possibly due to some poison. Post-mortem showed stomach bloody and inflamed, empty of food, but containing at least a handful of fish bones, all loose, probably the head of a haddock. The others died the same day, even after evacuation of contents by vomition, first filling up with bulky food. The suddenness of death surprised me.

Do YOU report your interesting cases in the Review? Read the paragraph at the head of the Department.

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,
of the McKillip Veterinary College, Chicago, Ill.

NEPHRECTOMY.

Nephrocentesis, nephrotomy and nephrectomy are closely associated, and any one of these operations may be indicated for the same condition, or may be performed in succession for the relief of renal diseases. In our study of nephrectomy we shall divide the subject as follows:

1. History.
2. Indications.
3. Symptoms.
4. Mortality.
5. Operation.

1. *History.*—The operation has been performed upon animals for the purpose of perfecting it, and to demonstrate that animals can live with but one kidney; besides, these operations have also been performed to ascertain the sequelæ that may be expected after the removal of a kidney, before applying such interference to human beings. The first successful operation of this kind was performed by S. Blancard, and the surgeons that witnessed it considered it a procedure applicable to human subjects. Nephrectomy was performed unexpectedly several times before it was undertaken as a planned operation, but at present it is being placed among the practicable surgical operations with a decreasing mortality. The first operation undertaken with a determination to remove the kidney of a human subject was performed by Simon, of Heilderberg, in 1869. The patient (a lady) made a good recovery, and since the operation has been frequently performed, with a mortality varying from 40 to 50 per cent. In experimental surgery on animals, the results are more favorable. This, however, is due to the unimpaired health of the animals used for such purposes. The operation is not a practical one for large domestic animals.

2. *Indications.*—In human surgery nephrectomy is looked upon with a degree of disfavor, because the mortality is large; this is due to a certain extent to delaying the operation too long, and in some cases to the improper selection of cases. It may be expected that the percentage of mortality will always be high, even if the cases are carefully selected. In veterinary

surgery it is an operation that could not be performed upon herbivora with any degree of assurance as to results, especially in the equine species; but, in carnivora, when performed for experimental purposes, the results are generally favorable. To recommend its use in renal diseases or displacement of the kidney in carnivora is admissible, but to claim that the results will be as favorable as when performed upon healthy animals for experimental purposes would be misleading, as we have never had an opportunity to judge from our experience in that line, but our experiments upon healthy animals have been very encouraging. In case of renal diseases, the condition should be diagnosed as soon as possible to obtain good results; if the patient is much depleted before, the operation would not be so successful, and in all probability the mortality would be much higher than when the animal is in good health; yet, with all the discouraging facts that may be offered, when the operation is indicated no surgeon should neglect to relieve the condition by surgical interference. In many instances, when the cause of the trouble is due to cavernous tumors or hydatid cysts, temporary relief can be obtained from nephrectomy, but in such cases it is much better to remove the organ than to incise it. When the kidney contains multiple abscesses, it should not be incised but removed. To incise it properly in many cases the organ would be cut into many pieces, which would render the organ almost useless, even if all of the diseased portion is entirely removed.

When the kidney is affected with cavernous tumors, cysts or abscesses, the parenchyma of the organ is generally involved by the disease and usually greatly reduced in size, which impairs its functional activity and makes it almost useless; and it is considered in all such instances advisable to remove the entire organ.

Neoformations.—New growths of the kidney generally require a removal of the entire organ to effect a cure. The following classification of neoplastic growths may be considered as indications for the operation in question:

(A) Growths of congenital origin:—
  (*a*) Sarcoma.
  (*b*) Hydronephrosis.
  (*c*) Cavernous tumors (angioma).
  (*d*) Renal cysts.
(B) Growths of adult origin:—
  (*a*) Extra-renal growths.

  1. Tumors of adrenals.
  2. Cysts.
  3. Abscesses.
- (*b*) Renal pelvic growths.
  1. Pyonephrosis.
  2. Villous tumors.
  3. Carcinoma.
  4. Hydronephrosis.
  5. Sarcoma.
- (*c*) Cortical and capsular growths.
  1. Carcinoma.
  2. Sarcoma.
  3. Adenoma.
  4. Fibroma.
  5. Lipoma.
  6. Cysts.
  7. Tuberculosis.
  8. Secondary growths.

Diseases of the kidney of domestic animals is more common than it is generally accepted to be; and it is interesting to note to what extent they may be involved without being detected during life. Very frequently upon post-mortem, the kidney is found so diseased that it is almost useless, and in some cases they attain enormous size. Our observations lead us to this conclusion: that renal diseases are more common to young animals and very old ones, than to middle-aged ones. In young animals the most common conditions are sarcoma and hydronephosis, while in old ones we usually find cysts, abscesses, pyonephrosis and secondary growths. We have often noticed animals with one kidney badly diseased and the other one perfectly sound, but the condition was never detected before the animal was slaughtered. Whether or not renal diseases are so common in the horse as in meat producing animals we are unable to state at present. In the past two years during the dissecting of equine subjects at this institution (McK. V. C.), we have noticed but two diseased kidneys; one had an abscess in the pelvic portion of the kidney, and the other a secondary growth in the cortical portion.

Renal Fistula.—A urinary fistula in connection with the kidney and ureter is an indication for nephrectomy; they may follow parturition, traumatic and surgical wounds, and in most cases break open in the direction of least resistance. When renal fistulæ open into the peritoneal cavity the termination is generally very rapid, if not treated surgically. Some of the conditions accompanying them may not require a removal of the kidney, but can be treated by another surgical method which we shall mention in connection with the surgery of the ureters.

Traumatic Injuries.—Severe injury to one of the kidneys of an animal may require a removal of the kidney; injuries to the ureters when located near the kidney may also be considered an indication for the operation, but if the injury is far enough from the kidney to permit an anastomosis of the ureter with its fellow, the kidney should not be removed. The subject of anastomosis of the ureter will be discussed in some future number of the REVIEW. Renal injuries accompanied by severe hæmorrhage calls for an immediate removal of the organ; if not removed the accumulation of blood in the bladder or urethra will prevent micturation. Injuries to both kidneys should not be considered an indication for nephrectomy.

Nephroptosis.—Dr. Jenner gave the first description of movable kidneys as observed in human subjects in 1869 (*British Medical Journal*). Since then the condition has frequently been observed in human patients, but in veterinary patients it is seldom diagnosed during life, although it is occasionally found when post-mortem examinations are made, and often when it is least expected. In human subjects about 80 per cent. of floating kidneys are found in women; 80 per cent. of all cases involve the right kidney; and, but 10 per cent. of all cases involve both organs. We are unable to find any statistics referring to domestic animals. The conditions may be caused by hypertrophy of one kidney as a result of disease, or an atrophy of the other one. Tumors are frequently associated with movable kidneys, but whether these cause dislocation by increasing the weight of the organ otherwise is difficult to state. Dislocation may follow absorption of circumrenal fat caused by disease that result in emaciation. The surgical treatment in nephroptosis should not be confined to removal of the kidney; some of these cases can be successfully treated by fixing the kidney (*nephrorrhapy*).

Symptoms.—The principal symptoms by which renal diseases are detected are enlargements in the abdominal cavity and hematuria. In herbivora it is very difficult to diagnose renal tumors by manipulation, but in carnivora it is not so difficult. Hematuria exists in most of these cases, and at times the blood accumulates in the ureter, bladder or urethra, which usually causes renal colics, marked by painful attempts to micturate (*vesical tenesmus*). The urine during intervals of hæmorrhage contains pus-corpuscles and tube casts. A correct diagnosis depends much upon the examination and analysis of the urine.

Pain, as a symptom of malignant growths of the kidney or renal diseases, is not always of sufficient intensity to add much to the diagnosis; but when it is severe it radiates from the kidney in the direction of the abdomen, loins, and extending to the thigh; this is manifested by the position of the spine and the gait of the animal; in renal diseases the lumbar vertebræ are usually curved (*lordosis*); no dependence can be placed in palpation to detect renal growths or diseases in herbiverous animals.

Mortality.—Mortality varies according to the nature of the disease; the highest percentage of mortality occurs in malignant disease of the kidney. In experimental surgery, nephrectomy is usually performed upon healthy animals and the result is generally very favorable.

Operation.—The kidney can be removed in two ways, viz.:

1. Lumbar nephrectomy.
2. Celio-nephrectomy.

1. *Lumbar nephrectomy* is performed without opening the peritoneal cavity. The patient should be prepared for the operation; properly cast, anæsthetized, and placed in the proper position. An incision is made posterior to the last rib in the direction of the ends of the transverse processes of the lumbar vertebræ.

When the external border of the psoas muscle is reached the areolar tissue between it and the peritoneum should be broken down with the fingers until the kidney is reached. If the incision is not large enough it can be enlarged by making one or two secondary incisions; the directions of these secondary incisions should be determined when the kidney is reached and its condition ascertained. If the organ to be removed is healthy the incision may not need to be enlarged, but if enlarged or adherent it may be necessary to make a number of secondary incisions to enable the operator to manipulate the kidney and ligate the vessels before it can be removed. These secondary incisions may be made in the direction of the external angle of the ilium and toward the posterior border of the last rib; in small animals the costo-iliac space may be too small to admit the hand if it is not enlarged in the direction of the external angle of the ilium and the posterior border of the last rib. In every case the condition of the kidney should be ascertained before the incision is enlarged, and if the condition can be properly treated by nephrotomy it should not be removed; but if there is any doubt as to its efficiency, the proper method to adopt is to remove the entire kidney. The line of the secondary incision is not of much importance, any direction that will give the operator plenty of room will answer the purpose, providing that it does not enter the peritoneal cavity. When the incision has been enlarged and all hæmorrhage arrested the hand should be passed close to the capsule to separate it from the circumrenal fat; if adherent it may require the use of a knife or scissors. When the kidney has been loosened from its surrounding tissue, the blood vessels must be ligated; they may be ligated separately or in a body including the ureter. If the kidney is large, a temporary ligature may be applied and part of it removed in order to make room for the purpose to ligate the vessels properly. If it is possible to ligate them without including the ureter it should be excluded, and when the blood vessels have been substantially ligated the kidney should be removed by cutting the vessels at a safe distance from the ligature. The pedicle should be carefully examined and properly trimmed; the wound irrigated, all hæmorrhage arrested, and the incision closed and carefully drained.

Celio-Nephrectomy or Abdominal Nephrectomy.—The incision can be made along the linea alba or a little to one side of it, depending upon the kidney involved. The length of the incision should be about 10 cm., just large enough to admit the hand to make an examination; the centre of the incision should be near the umbilicus. The incision may be enlarged to suit the condition ascertained by the examination. The intestine must be kept to one side by the use of sponges; a small incision is made into the peritoneum over the kidney, which is enlarged with the fingers and the kidney separated from the surrounding fat. The ureter is ligated and cut, when the blood vessels may be ligated collectively and the kidney removed with a pair of scissors. The cavity must be thoroughly cleaned, and all the sponges and instruments removed. The operator must count all articles used for the operation before and after the operation. The cavity is closed as in celiotomy. The ventral incision is preferable in removing a floating kidney or an enlarged tumefied kidney. After-treatment is the same as in celiotomy. (See Celiotomy, Dept. of Sur., REVIEW.)

SURGICAL ITEMS.

Suturing Cutaneous Wounds.—Many veterinary surgeons who are successful operators often neglect to close their surgical wounds properly. The unsightly cicatrices that are left behind reflect upon the principle and practice of the operator. The principle that governs suturing is simple, and it is probably for this reason that this procedure is so often neglected. The direction of incisions may be straight, angular, arciform, elliptoid or sigmoid. Straight and angular incisions should be sutured so that the stitches form a right angle (90°) with the incision, excepting those that occur at the angle, and these should divide the angle into two equal parts. The stitches of an arciform or elliptoid incision should converge toward the centre of the circle or ellipse of which it forms a part of the circumference; sigmoid incisions should be sutured in the same manner, making the radii correspond to the direction of the curves. The application of stitches in minor surgery is a very important factor, not as a matter of dollars and cents,—sepsis and asepsis,—or life and death,—but as an example of the surgeon's good work.—(*E. M.*)

Ureteral Anastomosis and ureteral grafting have received much attention in consequence of the frequency with the ureter is involved in the operation of vaginal hysterectomy. Formerly the only hope that could be held out for the patient suffering from ureteral fistula after such an operation, was nephrectomy, but ureteral anostomosis and grafting bid fair to entirely replace this severe procedure.—(*H. Morris*, *International Jour. of Sur.*)

In Small Abdominal Wounds it is difficult to ascertain whether the peritoneum is perforated or not, but in no case should the wound be probed for this purpose. In order to determine the extent of the wound, the patient should be secured, and an incision made in the skin, passing through the wound, then incise the muscles one by one until the extent of the wound is ascertained, and the operator can then govern himself accordingly.—(*E. M.*)

Dr. W. J. Martin's Epispastic for Spavin.—Corrosive sublimate, one ounce; hydrochloric acid, one ounce; oil of turpentine, six ounces; gum camphor, four ounces; rectified spirits, forty-three ounces. Dissolve the corrosive sublimate in the hydrochloric acid and seven ounces of the alcohol. Mix the oil of turpentine, camphor and remainder of the alcohol, then add the two solutions together. Directions: Apply over the hock once or twice daily for two to four weeks. Recommended especially where there is prejudice against more heroic measures.—(*L. A. M.*)

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By Adolph Eichhorn, D.V.S., New York City.

Bad Results Following Neurectomies [*Dages*].—D. reports and describes several cases of neurectomies, which were followed by the bad results of sloughing of the horny capsule, etc., either due to traumatism or other unknown causes; but in spite of them he comes to the conclusion that in many cases neurectomy is a most valuable remedy in chronic cases to restore the usefulness of the animal. Of more interest to us is the accompanying discussion as to the cause or causes of the bad results following neurectomies. Nocard reports that out of the numerous neurectomies which he performed, high, low and often on both legs at the same time, the bad results following were not as often as those reported by Dages, and he also states that they are exceptions and are not to be described as the result of the operation, but to traumatism to the foot, which, not being sensitive, will not produce lameness, and which are as a rule discovered when it is too late. Furthermore, N. states that aside from this there is another cause to be considered, and this is the injury to the blood vessels which accompany the nerve. In this way a phlebitis is produced which may spread as far as the vein roots, with disastrous results. In consideration of these sequelæ, N. recommends the following precautions to be taken in operations upon nerves: (1) strict antisepsis; (2) carefully avoiding all injuries and exposure of the accompanying blood vessels; (3) giving perfect rest to the patient for at least a month after the operation. Liautard also states that out of the hundreds of neurectomies he had performed he did not observe any bad results. In opposition to this, Benjamin cites cases which in spite of the most strict precautions bad results followed. He especially disputes Nocard's views in reference to the theory of phlebitis, which is due to an infection, as in most of his cases, also in those followed by the bad results, he succeeded in healing the wound by first intention. Therefore, he cannot mark the neurectomies as an unhesitating operation.

Cagny agrees with Benjamin according to his observations.—(*Bul. de la Soc. Centr. de Med. Vet.*)

ETIOLOGY AND THERAPY OF PARTURIENT PARESIS [*Schmidt*].—After enumerating the well-known theories as to the cause of parturient paresis, Schmidt advances and adopts the following thesis: "Parturient paresis is produced by toxic products of metabolism, which are formed in the colostral milk, and are introduced into the juices of the tissues. To prove this assertion, S. states that milk fever may come on before or after parturition, but never before the beginning of lactation, and always only a few days after lactation began. Parturient paresis therefore is always in direct relation with the colostral milk. The colostrum chiefly differs from the normal milk in containing considerably more protein substances, which entitles the assumption, that the formation of the toxins in the colostral milk can be brought in connection with the great amount of proteids, and with the decomposition of these protein substances. The resorption of the decomposed products brings about the paresis and the ceasing of the secretion of the milk gland. The infusion into the mammæ results in the following: (1) A washing out of the toxins and the colostral milk; (2) prevention of the resorption of the toxins, and (3) stimulating the gland to secretion.—(*Wochenschr. f. Thierh.*)

IODIDE OF POTASSIUM IN CIRRHOSIS OF THE LIVER [*Huber and Eisen*].—The authors report 26 cases of this affection, of which 11 were treated with iodide of potassium. Out of those 11 cases, 8 recovered, one died from traumatic pneumonia after the symptoms of cirrhosis of the liver had almost disappeared. The two remaining cases were slaughtered. The treatment consisted of an injection of 30.0 grams of Lugol's solution, freshly prepared, repeated two, three or even four times at intervals of two or three days. A recovery may be expected, if after the injection a slight improvement in the sensorium is noticeable so that the patient will not submit to the second injection as quietly as when injected the first time. In one case after eight weeks there was a relapse of the disease, but the treatment was repeated and the animal recovered. These observations prove that good results are obtained from the use of iodide of potassium in this affection, and it is certainly advisable to give this form of treatment a trial. It is also very important that the patients be taken in time for this treatment, and furthermore never neglect to notify the owner of the symptoms of iodism.—(*Woch. f. Thierh.*)

FRENCH REVIEW.

FAST OF 40 DAYS IN A COW [*A. Liberge*].—A true case of autophagy, if it can be said, was observed by the author upon a fine Normandy cow which was in handsome condition. While at pasture one fine night it disappeared. Some forty days after she was found imbedded between three mows of straw, where she had fallen. She was still alive. Her lips were stuck together by mucus dried on their borders and the buccal entrance was completely closed. The straw which surrounded her being removed, she was found, almost standing up, in an excessive condition of emaciation; her abdomen tucked up, and behind her was a small quantity of fæces, showing that her abstinence had been almost complete. She was with difficulty removed to a barn, where with care, milk diet, etc., she gradually recovered.—(*Rec. de Med. Vet.*)

AN ENORMOUS EGAGROPILE IN THE HORSE [*L. Colin*].—Returning from military drilling work a mare was taken with violent colics, during which she assumed most peculiar positions: dog sitting, dorsal decubitus, etc. The colics lasted for two days and at last the mare died. At the autopsy a hard, enormous mass, free of any attachments and easily displaced, was found in the diaphragmatic curvature of the large colon. It was formed by an agragopile as big as a child's head; it was smooth, nearly spherical, not adherent to the intestines. It was brown in color and had the appearance of a coarse felt, formed of hairs glued together; it weighed 1800 grammes.—(*Rec. de Med. Vet.*)

SUGAR IN MOIST DERMATOSIS OF THE DOG [*R. Bissauge*].—To satisfy himself of the therapeutical value of sugar, recommended by some in both veterinary and human medicine, the author has used it in wounds of the knee, in diseases of the eye, principally of the cornea, etc., but where he has obtained the most satisfactory results is with the moist dermatosis of dogs—such as impetigo, ecthyma, eczema, etc. Mr. B. has used sugar with these, either alone or associated with other substances, and has obtained very good results. The following are some of the preparations he has resorted to: Oxide of zinc and powdered sugar, equal parts; lanoline and vaseline, 20 grams of each; sugar and oxide of zinc, of each 15 grams, 2 or 3 applications a day; oxide of zinc and sugar, of each 15 grams; gelatine, 25 grams, heat it and apply with a brush. For rebellious cases he uses: Tannin or salicylic acid 2 grams, powdered sugar 5 grams, vaseline 40 grams; or calomel and sugar, of each 3 grams, lanoline 30 grams; apply four or five times a day. Internal treatment of bicarbonate of soda, arsenic preparation, etc., is, of course, also to be recommended.—(*Rec. de Med. Vet.*)

ATROPHY OF THE SEMIMEMBRANOSIS AFTER CASTRATION [*By J. Monsarrat*].—Having a horse to castrate the author threw and secured him in the ordinary way, but had a great deal of difficulty in bringing the right hind leg on to the shoulder, on account of the stiff condition in which the horse held the leg. The operation was successful and the cicatrization was complete in fifteen days. Two months later, however, the very marked emaciation of the semimembranosis was called to his attention. No treatment was applied, exercise only prescribed. The muscle returned slowly to its normal size, but it required several months for it. This is a peculiar complication of the positions in which animals to be castrated are sometimes submitted, and to avoid it the author recommends the dorsal decubitus, which is already resorted to by many veterinarians. —(*Rec. de Med. Vet.*)

A CASE OF POLL-EVIL IN THE HORSE [*By A. Morey*].—This horse had a fall in which his head struck heavily on the ground, leaving at that time only a slight excoriation, which healed rapidly, but was followed by the appearance of a large soft tumor. The horse was notwithstanding kept to work, and it was after he had several attacks of vertigo and partial loss of motion that the owner asked for advice. The swelling was evidently purulent and was allowed to escape by a free incision. To explore the cavity of the abscess it was necessary to cast the patient, and on examining, extensive necrosis was detected, with a loose piece of the occipital bone floating in it, and, rough and irregular, it measured some twenty-one centimetres square. Free counter openings, frequent washings with solution of sublimate, 1–1000, allowed the animal to resume work in less than three weeks.—(*Journ. de Med. Vet. and Zoötech.*)

CUTANEOUS PAPILLOMAS IN A HEIFER [*By M. Mathin*].—When this heifer was brought to the attention of the author both fore legs were terribly affected. On the left, the tumors occupied the posterior and lateral parts of the knee, of the tendons and of the cannon; forming a mass of horny papillæ of various sizes, with here and there pedicles, giving in some places the appearance of an artichoke, in others that of a chrysanthemum. On the right leg the general appearances were about the same, although perhaps not so extensive. The hind legs, the trunk, the shoulders, neck and the head presented also patches more or less developed. Some of these tumors were intact, others were excoriated and bleeding. The animal was much annoyed with flies and suffered with constant itching. A form of treatment recommended by Professor Degivé, consisting in the administration of carbonate of soda, internally, was tried with so little result that the old mode of treatment was resorted to. This consisted in tearing away the tumors which held loose and amputating the others with elastic ligatures. The entire surfaces were dusted with the powder of Knauss and coal tar. The action of the coal tar brought out lots of larvæ of flies, which before resisted carbolic acid lotions. With this treatment, after twelve or fifteen days the growths began to fade and after a little over two months the animal was discharged.—(*Journ. de Med. Vet. and Zoötech.*)

CORRESPONDENCE.

THE ILLINOIS BOARD OF VETERINARY MEDICAL EXAMINERS —DR. SWAIN REPLIES TO DR. ROBERTSON.

DECATUR, ILL., Jan. 1, 1901.

Editors American Veterinary Review:

DEAR SIRS:—In the November number of the AMERICAN VETERINARY REVIEW, page 636, there appears an intellectual monstrosity painted by the pencil of Dr. James Robertson, D. V. S., member of the Illinois State Board of Veterinary Examiners, wherein the Doctor seeks to extricate himself from a very painful and peculiar dilemma in which he is placed by a published arraignment of the board's official conduct by the committee of the Illinois Veterinary Medical and Surgery Association.

This committee did not shirk its responsibility, nor deal in terms of maudlin sentiment; but, as honest and earnest men, inspired by a high sense of duty to their profession, proceeded at once to investigate a state of facts so revolting, that a solemn sense of duty bade them decide to cauterize and clean out this foul and offensive excrescence calling itself "The State Board of Examiners." We have no option, but are driven to this duty because of dereliction of duty and flagrant violation of law, amounting almost to malfeasance in office. From the Doctor's affected, inflated, sonorous and high-sounding style in defensive reply to our published report, the profession may readily gauge the intellectual and logical force of even this guileless graduate to successfully defend himself and his board when "weighed in the balance and found wanting." The doctor's defense is a sad surprise to us, coming from a source so eminent, as it furnishes us neither literary flowers nor any sort of fruit. It actually reminds us of Grover Cleveland's report to Mrs. Henry Ward Beecher with respect to his moral conduct, which was cunningly constructed, but when rightly reduced to the last analysis it was found to be one-half alibi and the other half confession. But if I may presume to further characterize the Doctor's contribution, it seems to be entirely innocent of ideas, of clearness, conciseness and classic culture. It is weak and wandering, murky and muddled; it is in the right road only when crossing it, and no sane man can decide what he is aiming at, which side it is on or which way it is going. It reminds us of the Irishman who followed the winding trail of a serpent till it entered its den, and then in bewilderment, Pat declared that:

"It so wriggled in and wriggled out
That it leaves the observer much in doubt
Whether the snake that made the track
Was coming out or going back."

The truth will appear to all who read the Doctor's defense, that his sympathetic heart and his avarice are entirely too much for his judicial head and sense of moral responsibility. He depicts the old illiterate moss-back practitioner coming before his board, ignorant of even the rudimentary principles of the science or art of our profession, and yet the board arms the incompetent with a license to prey upon the public and inflict infernal torture upon dumb beasts, because the applicant is poor in purse, burdened with children, and because he has the fee. Sentiment and twenty silver dollars too often sway the effeminate and unworthy official, but the stalwart soul feels that duty is the grandest word in this world. If delegated to perform a sacred duty, sentiment is utterly out of place. If placed upon the picket line facing the enemy, the officer has a plain and positive duty to perform, and against the law laid down for his guidance he is held to be criminal if he exercises any option or is influenced in the least by sentiment or sympathy or silver, as to whom he shall wrongfully let pass through his lines to the injury of the confiding body of nobler men behind him. A man who is thus honored with an important position of *trust*, must not prostitute it! It is criminal! The Doctor does not deny that he ever rejected an applicant! Think of it! And because our committee complain of this outrage, there comes creeping out from under the murky cloud of his article, a seething, hissing sneer at us as "non-graduated." Is that his only or his best defense against our just and righteous arraignment for his flagrant violation of the law?

Now, Mr. Editor, upon this point which the Doctor brings forward, let me suggest to him a little common sense. I say only a little, as his head is evidently incapable of holding very much. Whenever a diploma is conferred by a veterinary college upon a man of studious habits, of sterling integrity and sound common sense, and when that diploma has been well and worthily won and is thus an actual evidence of the owner's education in his profession, *then*, and only then, can I consent to uncover my head before a collegian with his sheepskin. But, when a diploma is prostituted to unworthy work, when it is regarded and flaunted before our face, not as a *help*, but as the *whole thing*, when it is used as a cloak to cover up absolute incompetency, as in the case of his eminence at whom this article is aimed, then a diploma becomes a dishonor, a degradation, and an actual curse. It dishonors alike him who has not sense nor culture enough to worthily hold it and the college and profession that conferred it. "I hope upon this point I am clearly understood."

And, sir, permit me to say, as respects myself, that "the crime of being a non-graduate," I shall neither attempt to palliate nor deny. In simple ignorance, I would be your equal not to know that I am the man at whom you aim this harmless blow. But in order to oblige you, I may say I wish the fact known amongst all men that I am a non-graduate; my place and position in my profession enables me to be thus independent of artificial aid. So, let it be placarded on our banners as I walk the Golden Streets of the New Jerusalem with the great body of the very best and brainiest men of our profession, and I wish it heralded all over Hell, where all dishonest doctors, incompetents and quacks are sure to hear it. But, my dear sir, wherever you hold aloft your diploma, we will run up over it the scalpel and the skeleton; these, I prefer, shall suggest the source of my proficiency in the profession, for I have yet to find a good veterinary surgeon who is a poor anatomist, nor have I ever seen a poor surgeon who is a first-class anatomist. It makes no difference where a man studies — whether in the woods or in a cabin, or in a castle or a college — but, to be a physician and surgeon he must *study* and be blest with a sound mind in a sound body, with an honest heart and a cool and clear head, for genius never stamps her image on common clay. I deprecate and denounce the Doctor's effort to disparage the non-graduate, for a man may be vastly more learned and efficient without a diploma than others who have them. Does he not know that when the great Daniel Webster received his diploma he tore it in shreds and said, "My energy and industry may make a man of me, but this miserable parchment never shall." Elihu Burritt, the learned blacksmith, acquired thirty-two different languages while working with his book before him at the forge. But, do not understand me that every blacksmith has the brain of Elihu Burritt. Robert Burns and William Shakespeare have swayed the world with their sublime poetry for two hundred years, and Abraham Lincoln, in every sense the equal of Moses and Solomon, were not only non-graduates, but they never even went to school. I cite these few from among the millions that I might, for the purpose, if possible, of shedding a ray of light into the dim and dark understanding of the Doctor's murky mind. Let it be understood that no one can honor an educated collegian more than I, but they have their peers among the great army of able men without diplomas. We are all students and workers alike in one cherished common cause, and the distinctions, such as the Doctor assumes, are not only injurious and odious, but can only emanate from a very little man with a very shallow mind.

Thus far we have curried the Doctor and his Examining Board with softest silk, but we must now come to something more specific, and which fully sustains the worst we have said.

In the city of Mattoon, Illinois, at the semi-annual meeting of the Illinois Veterinary Medical and Surgical Association, in the month of August, 1900, and before a well attended meeting, there being present visitors of eminence from the Illinois State Veterinary Medical Association, appeared an applicant for membership in our association, who had successfully passed the requisite examination before this State Board of Examiners. He appeared before our committee, and we proceeded to give him the usual examination. The questions put to him in anatomy, physiology, pathology, surgery, materia medica and obstetrics were primary and of the simplest sort, and to our utter amazement the man failed to answer a single question. When asked to locate the inferior maxilla, he was unable to do so, nor could he give the number of incisor or molar teeth, nor locate the tarsus nor metacarpal bones. He could not locate any section of the vertebra nor even the coccix. He was ignorant of the number of costals. He knew absolutely nothing of anatomy, physiology, pathology, materia medica, symptomatology, therapeutics nor surgery, and yet this man was graduated by this State Board of Veterinary Medical and Surgical Examiners to practice veterinary medicine and surgery in the State of Illinois. After being rejected by our committee, he came before and was questioned by the association, including Dr. W. J. Martin and Dr. N. P. Whitmore, of the Illinois State Veterinary Medical Association, and numerous others, to whom he declared that he had passed the requisite examination before the State Board and that he had their permit to practice in his pocket. He stated the board asked him the following questions: Are you married? How many children? What are you worth? How long have you practiced? If he could castrate and spay, and was questioned principally on these latter, and he declared it as his belief that the board sought to secure his methods of spaying and castration. We had some doubt on these points, but finally he convinced us. Their first demand on him, he said, was the fee of twenty dollars. He asked that in case of failure in passing, if they would refund the fee? They said: "No, but that need not disturb him because he would pass beyond all question." And *he passed*.

I will cite only one other case from any number I might, who passed this brilliant and benevolent Board of State Examiners. A gentleman who was demented and detained in the insane asylum, was let out on parole, and while in the bold flights of an extravagant fancy he conceived the idea of taking out license and entering upon the practice of veterinary medicine and surgery. He went before this State Board of Veterinary Examiners, was vigorously protested by Dr. Martin and others, but he furnished the fee of twenty dollars and passed the board successfully. Now I would respectfully appeal to the profession at large, if this committee were not justified in its published criticism of the board's official conduct and in asking for its removal from office; and to the Doctor himself, let me say in all kindness that, although a non-graduate, I hold myself equal to meet with overwhelming facts anything further he may care to offer, and for the present will only add,

"Lay on, Macduff, and damned be he who first cries hold, enough!"

S. H. Swain, V. S.

THE SURGICAL CLINIC AT THE MEETINGS OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION.

MANHATTAN, KAN., January 20, 1901.

Editors American Veterinary Review:

DEAR SIRS:—I had hoped that your editorial on the above subject and your invitation to your readers to use the columns of the REVIEW for its discussion, would bring out numerous suggestions from those who in the past have chiefly exerted their energies in private adverse criticism, rather than in lending their aid to correct the defects which have displeased them. In the December REVIEW, a writer expresses his disgust at the conditions under which an operation was performed at one of these clinics, and then proceeds to relate how he performs the same operation. After a perusal of that description, I am free to confess that unless he possesses more skill in performing the operation than in describing it, it is my judgment that the operation which excited such disgust in him, would probably result more favorably to the patient than one which he would perform in his "appointed operating room."

I yield to none a keener appreciation of the advantages of aseptic surgery, but a practitioner who adopts a plan "which can be followed out only in an appointed operating room," is, in my judgment, about as useful in ordinary practice as an Eastern dude or tenderfoot in a Western mining camp.

There is no longer any question or doubt as to the usefulness of antiseptics and cleanliness, but it should not be forgotten that asepsis is not the "whole thing" in operative surgery; manual dexterity or manipulative skill is equally important, if not more so.

The average, or, in fact, the most careful veterinary practitioner is unable to obtain ideal conditions in his everyday practice. He may have a correct appreciation of the importance of aseptic surgery, but his practical common sense and experience tell him that in order to meet the requirements imposed by the conditions of an ordinary country practice, he must possess something better than the ability to operate in a "properly appointed operating room." He must needs operate successfully with the best appointments possible under the conditions he is forced to meet, and not under such conditions as he might desire. The professor and the city practitioner sometimes tell us they will not operate unless the conditions are "just right," but the country practitioner who adopts that plan usually goes back to the college to teach veterinarians how to successfully (?)

meet the requirements of a general country practice, or goes out of the profession entirely, because it does not offer sufficient scope for the exercise of his genius.

The men who take most interest in these clinics will appreciate ideal conditions of environment, but they will also appreciate the difficulties of obtaining these ideal conditions, and will consequently be willing to overlook defects in such matters, but they will not tolerate "bungling" or lack of dexterity in technique.

Let those who feel it their duty to criticise (and it is an honorable duty) not ask too much in the matter of "appointments," but they may justly demand fair skill in the operators. However, it may not be out of place right here to state that "speed" is not skill in all cases; in fact, the most rapid operators are frequently the least skillful.

It seems to be pretty generally conceded, so far as I have been able to ascertain, that your suggestion to set aside one half day for the clinic is desirable, but in the past the difficulty in obtaining expert operators, who would perform the operations they had agreed to, has been the greatest one with which the local Committee of Arrangements has had to contend. Very few men are sufficiently versatile to be able to perform a number of operations with the greatest skill, but many ordinary general practitioners are experts in say one or two particular operations, and are, therefore, much more desirable as operators at our clinics than the man who performs all operations fairly well, but has not attained marked skill in any one. Almost every member of the profession knows at least one man who has unusual ability to perform at least one operation. Those who do know such a man should not fail to place that information in the hands of the local Committee of Arrangements.

Two experts should be selected for each operation scheduled, who will give unqualified promises to attend the meeting and operate. One may perform the operation and the other assist in case both are present. In the absence of one, the other is to operate, but if both should fail to appear, the operation should be omitted entirely, unless the committee is certain a skillful man can be obtained to perform it. In this connection it may be said that volunteers are not desirable. They usually have one of the qualities of a good operator, but frequently none of the others.

Again, it seems to me a very few operations well performed are worth much more than a large number indifferently executed.

Few of us realize the difficulties to be overcome before a perfectly organized and appointed clinic can be held, and we are therefore inclined to expect too much. Let us be reasonable in our demands. The clinics held in the past, notwithstanding all their defects, have in my judgment done much good, but I shall be very greatly mistaken if our friend Lowe and his colleagues do not give us, at our 1901 meeting, the best clinic we have ever had.

Yours respectfully, TAIT BUTLER.

"RANK" IN THE ARMY OF THE UNITED STATES.

WINSTON, N. C., December 25, 1900.

I notice among the oppositions to the veterinary part of the army amendment that some Senator said "he would not have his son, who is in the army, rank with a veterinarian."

Now, I want it understood that I am not trying to create the impression that the Senator is not rank, for evidently he is in his statement, but I would suggest one way for his progeny to rank as high as the veterinary profession is for him to set high examples, make broader and more manly statements and teach his son to stand on his manhood and merits and not to retard the advancement of the veterinary or any other humane calling. The Senator seems to have out-ranked himself and people of his real rank and gotten into the Senate ranks, and his son was able to rank as an officer in the standing army probably because his father ranked in the Senate, and when such rank misrepresentatives of the sentiment of all the best people of this country are shown that their rank is out of the Senate or are outnumbered in the Senate by men of real rank, we will see our poor army horses that have to carry these rank Senators' rank sons to fame, cared for in a scientific and humane manner, and the man who is talented and equipped and passes an honest examination, even though his father is not so rank as the Senator, will stand as high in army ranks, and does now stand higher in true patriotism, bravery, intelligence, greatness, humanity, civilization, and in the eye of an Almighty God than a boy who gets his ranking because his father is rank and has a "pull," or should he attain his rank himself, there is nothing in the army ranker than a real, ideal veterinarian.

They are called upon day and night, Sunday and holidays, to perform the duties of one of the noblest callings on earth, and expose themselves and their lives to dangers that *no* army private or officer, even in the history of the world, were called upon to perform and face.

We have heard of all kinds of guns, etc., and the accuracy of gunners, and all the horrors of war, which does require some bravery to face, but think of the determination, accuracy of aim and surety of injury or death and the certainty of action of a mule and his heels and the amount of true bravery one must possess to volunteer *for life* to face this and so many hazardous surroundings daily, for what? Not for pay or honor, for no veterinarian is overpaid and gets no honor at all; so it must be for the love he has for the poor dumb animals we have taken their liberty from and made lifetime slaves of. Creatures that are in principle just what they are, and rank higher in usefulness and faithfulness to mankind and civilization than a Senator or any one else who would endeavor to keep the Government from putting men of real rank and competency in proper position to protect them, for they have for centuries been the subject of shameful quackery and have won many victories for our Government and honors for the rankest of the rank.

In conclusion, I wish to say that even the Senator is not the rankest thing on earth; he responds as a schoolboy to the tap of the hammer—Order—from the Chair; and his voice is hushed and his rank is dead in the Senate Chamber. His vote is vetoed by the President, to all of which he must submit in obedience to higher rank. The Senator's son in the army must respond to higher ranks and obey their orders right or wrong. The *true* veterinarian responds only to the calls of mercy from the dumb animals and obeys *only* the laws of God in administering to the needs of the same.

J. W. PETTY.

OBITUARY.

CHARLES BURDEN, D. V. S.

What may be termed the "Old Guard" of the American veterinary profession has suffered the loss by death of one of its most prominent and honored members. Charles Burden has been for more than thirty-five years a bulwark of strength and an unflinching exemplification of all that stands for high principles, noble character, and purity in professional and private life, and deep will be the grief of those who knew him when the sad tidings of his sudden demise shall strike their eyes. Dr. Burden, while not in robust condition, had been in his accustomed health until Friday morning, Jan. 25, when he was suddenly stricken with apoplexy while arising from sleep, and died during the day.

He was born in London, England, May 6, 1833, coming to America when a young man, and engaged in the practice of veterinary medicine in partnership with the late Dr. E. Nostrand. In 1866 both he and Dr. Nostrand entered the New York College of Veterinary Surgeons, at 205 Lexington Ave., New York City, Dr. Nostrand graduating in 1867, and Dr. Burden the following year. It is related that in his last year at college he had the distinction of forming the entire class, to whom regular lectures were given by quite a large faculty, he graduating in the spring of 1868. He immediately resumed the practice which he had formed as a non-graduate, and enjoyed for many years a large and lucrative business. Before there was a college in this country to give him his coveted veterinary training he was active in the advancement of the profession, having been a charter member of the United States Veterinary Medical Association, its Secretary from 1865 to 1867 and its Treasurer for many years. When the American Veterinary College was established his sympathies and support went with it, taking an *addendum* degree from that college in 1876; and he was ever loyal to his alma mater, serving as an alumni trustee for a number of years, and no movement looking to her welfare ever occurred that Charles Burden was not a leading spirit. A Christian gentleman, charitable and sympathetic to a fault, modest and unassuming, his was a noble life, an adornment and an example to his calling, and his place will be hard to fill. The death of a beloved son about five years ago was a serious blow, but there survive him his devoted wife and a son who was at the time of his father's death serving as a Government civil engineer at Santiago, Cuba. The funeral occurred at his late residence, 216 East 52d Street, New York City, Jan. 27.

BIBLIOGRAPHY.

LABORATORY DIRECTIONS FOR BEGINNERS IN BACTERIOLOGY: An Introduction to Practical Bacteriology for Students and Practitioners of Comparative and of Human Medicine. By Veranus A. Moore, B.S., M.D., Professor at the New York State Veterinary College. Second Edition, revised and enlarged. Boston: Ginn & Company.

Dr. Moore's little brochure first appeared in 1898, and the call for a second edition has followed so closely upon its introduction that its appreciation has been well pronounced. Bacteriology has taken such a commanding position in the practical work of the veterinarian, that he who ignores its teachings or practical application is virtually without a place in advanced veterinary medicine. To those of our profession, therefore, who were unfortunately without adequate instruction in this important branch during student life, and to all others who wish to pursue the investigation of the many diseases of bacterial origin, the work of Dr. Moore will be found invaluable. Beginning at the very root of the subject, with a list of the materials necessary to start the work, he carries the reader on through some sixty-four exercises to the study of the microörganisms of most diseases of animals and man. The instructions under each exercise are full, specific, and clear, and by an intelligent adherence to them a person with some knowledge of the subject can pursue investigations with success.

The reputation of the author is world-wide in the field of which he treats as a thorough and earnest investigator, with large experience and much ability, and his contributions to comparative pathology have been of so high an order that this latest volume will take its place as an indispensable addition to our literature, and the veterinarian's library will fail to be complete unless it contains this work.

PHYSICIANS' MANUAL OF THERAPEUTICS, Referring especially to the Products of the Pharmaceutical and Biological Laboratories of Parke, Davis & Co. Flexible morocco: 12mo. 256 pages: Detroit, 1900.

To modern pharmacy, and especially to modern manufacturing pharmacy, we are indebted for many of our most useful remedial aids. Without the valuable coöperation of such a vast and thoroughly equipped establishment as that of Parke, Davis & Co., for example, the medical profession might be most inconveniently handicapped.

This work may be conveniently carried in the pocket or, being handsomely bound in flexible morocco, it may be permitted to ornament the office desk of the practitioner.

To quote from the preface, "the purpose of the work is to place before the prescriber a means of perceiving at a glance all the available forms or pharmaceutical preparations of any drug now in vogue." No secret combinations are referred to; in every case the precise formula is given and in most instances the dose is appended, for obvious reasons. The "Therapeutic Suggestions" bear evidence of careful preparation and the list of diseases and symptoms is as nearly complete as practicable in a book of this kind. Various useful tables follow, while the bulk of the work is made up of the section of Materia Medica. This is a complete catalogue of drugs in general use, alphabetically arranged, a plan which renders the task of finding a remedy an easy one. Under each caption is then arranged, alphabetically also, a list of all the preparations made by the firm containing the drug to which the caption refers. The list of preparations of certain standard drugs is sufficiently long to enable the prescriber to meet the most exacting conditions by a choice therefrom. For example, those containing aloes occupy eight pages; those of arsenious acid, five pages; the iron preparations, nineteen pages, and so on.

We advise practicing veterinarians to procure this excellent book, which can be secured free of charge upon application to P., D. & Co. That it has been carefully prepared is evident to the reviewer; it is singularly free from errors and it is durably and handsomely bound.

U. S. ARMY VETERINARIANS.

The following is a list of the veterinary surgeons and the regiments and stations to which they are assigned:

1st Cavalry—Coleman Nockolds and W. Going, Manila, headquarters and two squadrons, one squadron in United States.

2d Cavalry—W. V. Lusk and W. Grutzman, regiment in Cuba, headquarters at Matanzas.

3d Cavalry—O. Schwarzkopf and S. L. Gelston, regiment at Manila.

4th Cavalry—A. Plummer and A. McDonald, Philippines, headquarters at Pasay.

5th Cavalry—G. E. Griffin and A. Mitchell, regiment in United States, headquarters at Fort Myer, Va.

6th Cavalry—S. L. Hunter and D. Gilpin, headquarters and one squadron Manila, one squadron at Pekin, China, one squadron *en route* to Manila.

7th Cavalry—D. Le May and F. Foster, regiment in Cuba, stationed at Havana.

8th Cavalry—R. Stanclift and R. Corcoran, headquarters and two squadrons in Cuba, one squadron in United States, headquarters Puerto Principe.

9th Cavalry—S. Glasson and J. Tempany, headquarters and two squadrons at Manila, one squadron in United States.

10th Cavalry—C. D. McMurdo and S. Service, headquarters and two squadrons in Cuba, one squadron in United States, headquarters Manzanillo.

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

Had any veterinarian in the State of New Jersey an impression that the amalgamation of the three State societies, which was accomplished just one year ago at the meeting in Newark, was not complete and that the veterinary forces of the State were not united in a loyal and unselfish purpose, attendance at the meeting, held at the State Street House, Trenton, on the 10th day of January, would have banished from his mind all doubt or question. Although the day was dark and stormy, in fact, one of the most disagreeable of the year, the attendance and spirit of the meeting were most gratifying, the attendance being upward of forty and the fraternal feeling exhibited by every man such as to be long remembered. Another indication of prosperity was the application of 12 men for membership. Messages were received from four members who were detained at home on account of sickness or death of friends or relatives. Among this number was the President, Dr. Hurley, of Hopewell, and in his absence the First Vice-President called the meeting to order. The principal business of the day was the report of the committee on revision of the constitution, by-laws and code of ethics.

The committee presented a revised constitution. The Board of Censors' constitution for the government of an organization was a matter of extreme importance and accordingly each article was taken up separately and carefully considered, the greater portion of the session being devoted to the settlement of questions which arose relative to the advisability of certain changes. All questions were discussed in a most kindly manner and the revised constitution was finally adopted to the satisfaction of all present.

Following the adoption of the constitution occurred the election of officers for the ensuing two years. Dr. T. Earle Budd, of Orange, in the following well chosen words nominated Dr. Wm. Herbert Lowe, of Paterson, for President :

Mr. President and Gentlemen : Our attendance to-day is an expression of our loyalty to our former societies and a belief that this society, in the future, will exert a wider influence and will foster in each member a desire to regularly attend its meetings and by thought and interest will put this society and the profession itself in the ranks to which it belongs—second to none.

In presenting the name of one who will be the President of our New

Jersey Veterinary Society for the coming two years, I shall present one to you who has been weighed in interests of our society and the veterinary profession and not found "wanting." I will present one who has held positions of trust for our Government for eight years, and when his place was filled by others it was a record he left that his successor would be willing and glad to follow and the veterinary profession proud to point to. He now stands the treasurer of our American Veterinary Association.

It is also his untiring zeal and unremitting effort that has taken our weak and ineffective societies and merged them into a body that is to be known as the New Jersey Veterinary Medical Association, a society which will be effective in its work, an advance to our profession and a help and stimulus to each of its members.

It is also due to his efforts that we are to have the honor of having the National Society meet in our State next September.

Gentlemen, it is, I think, an honor that to-day, in this the beginning of our new century, we have the privilege of making Dr. William Herbert Lowe our President, whose name I bring before you. Personally I feel it an honor to present the name of Wm. Herbert Lowe, of Paterson, as the President of the New Jersey Veterinary Medical Association for the years of 1901 and 1902.

Dr. Lowe was elected by a unanimous vote, was escorted to the chair and delivered the following inaugural address, which we wish might be read by every veterinarian in our land.

PRESIDENT LOWE'S INAUGURAL ADDRESS.

Fellow Members:

I rejoice in the complete unification of all factions of the profession in this State harmoniously, and triumphantly, accomplished during the closing year of the old century.

With the obliteration of all factional differences, and with a common interest and a common devotion to a common cause, the possibilities and prospects for advancement along broad and advanced lines, in our science and art, are almost illimitable. Like every great movement there had to be some individual sacrifices made, but those sacrifices made for the common good of the profession, have strengthened the ties of friendship and mutual respect such as nothing else could.

By your voice, and with your vote, you have seen fit this day to confer upon me the unique and distinguished twofold honor of being the first President-elect of the amalgamated association of the State of New Jersey, as well as the first President of the New Century.

This is indeed an honor that any man in the profession might feel proud of, but the thought that is uppermost in my mind at the present time is that the responsibilities and opportunities of the executive officer of the Veterinary Medical Association of New Jersey, as now constituted, are infinitely greater than has ever before fallen to the lot of any veterinarian in our State.

The progress of this association must ever be along scientific and broad lines with a constant view to applicability and practical usefulness. Nothing short of this will satisfy the veterinary practitioner of the twentieth century. How well this shall be accomplished, in New Jersey, depends largely upon you. Your President will outline and direct various lines of investigation and organized work, but the success of his administration will depend, in a large measure, upon the earnest and loyal support that each member gives him in his official capacity. Let each member do his part well, whether it be much or whether it be little, and the result will be simply marvelous.

Less time must be spent in the transaction of routine business and more time devoted to the consideration of the scientific and practical problems of our profession. Busy practitioners will not leave their practice and come to our meetings, unless they profit by coming. We must make the meetings so interesting and instructive that practitioners cannot afford to be absent. Then the association will be a success.

Another thing, be broad and liberal minded. Things will occur at our meetings that you, individually, do not approve of. Do not get disgusted and stay away from the next meeting, but, on the contrary, be sure to come and do your part to correct what you believe to be wrong.

Then, again, do not stay away from meetings of the State association because there are some members that you do not like or that you do not consider well qualified. You can associate with those who are congenial, but above all remember that those who are less competent than you need the benefit of the organization more than those who are better qualified.

Two very important committees are created by the new by-laws adopted to-day. The breadth, scope and practical value of the work of these committees to the public are, so far as I know, in advance of that of any similar committees anywhere in existence.

It is made the duty of the Public Health Committee to investigate, advise and report on animal diseases, animal foods, sanitation and other matters relating to and concerning the public health. The importance and value to mankind of the work of this committee alone, if intelligently conducted, cannot be estimated.

The other important committee that I refer to is to be known as the Animal Industry Committee, which shall investigate, study and report on all practical problems and questions relating to the breeding, maintenance and utilization of animals with a view of fostering and placing animal husbandry, in all its phases, upon a more scientific, economic and profitable basis in this State. Many associations have committees on diseases and on contagious diseases, etc., but sight has been lost, in many instances at least, in the practical value of a scientific application of the physiological laws governing the animal industry. This phase of this important subject has been left almost entirely to the layman to manage the best he could. No wonder the public should have a restricted idea of the veterinarian, and no wonder that a newspaper reporter should say that he did not think that an account of the meeting would interest the general public. I agree with him that the routine proceedings would not interest the general public, but I know at the same time that if the association was doing the work that properly comes within its scope that there would be much that the newspapers would be looking for. We as a profession are not in close enough touch with agricultural, live stock, dairy, public health, sanitary and kindred associations and boards. Our members should meet with organizations of this class and their members should be encouraged to meet with us.

The establishment of these committees inaugurates two inexhaustive fields for the progressive veterinarian. There will be plenty of work in the future for many veterinarians in connection with breeding, maintenance and utilization of animals, even if there should be no sick ones to treat. Then, again, there remains for the veterinarian much to be done in preventive medicine and sanitary science that will be a boon to the human family.

Gentlemen, I thank you.

Other officers elected were: First Vice-President, Dr. T. Earle Budd, of Orange; Second Vice-President, Dr. J. O. George, of Camden; Secretary, Dr. George W. Pope, of Garfield; Treasurer, Dr. B. F. King, of Little Silver.

A vote of thanks was extended to the retiring officers who had borne the heat and burden of the day. Special mention is here made of Dr. Lockwood, who retired from the secretaryship after a faithful service of seven years.

Dr. W. Horace Hoskins, of Philadelphia, made a flying trip to Trenton in the afternoon, and by his presence and a few timely words of cheer and encouragement added to the inspiration of the day.

At 6 P. M. the meeting adjourned to meet in Newark in July.

GEORGE W. POPE, *Secretary.*

President elect Lowe announces the appointment of the following committees and delegates:

Executive Committee.—Dr. Wm. Herbert Lowe, Paterson, Chairman; Drs. Geo. W. Pope, Garfield; T. E. Smith, Jersey City; John B. Hopper, Ridgewood; James M. Mecray, Maple Shade; L. P. Hurley, Hopewell, and S. S. Treadwell, Englewood.

Public Health Committee.—Dr. Werner Runge, Newark, Chairman; Drs. G. P. Harker, Trenton; J. V. Laddey, Arlington; Whitfield Gray, Newton; L. R. Sattler, Newark.

Animal Industry Committee.—Dr. J. Payne Lowe, Passaic, Chairman; Drs. R. R. Letts, Jersey City; W. F. Harrison, Bloomfield; John B. Finch, Ramsey, and James W. Hawk, Newark.

Legislation Committee.—Dr. T. Earle Budd, Orange, Chairman; Drs. A. G. Vogt, Newark; Wm. B. E. Miller, Camden; T. E. Smith, Jersey City, and Dr. Henry Vander Roest, Newark.

State Committee on Atlantic City Meeting.—Dr. James T. Glennon, Newark, Chairman; Drs. John O. George, Camden; E. L. Loblein, New Brunswick; E. R. Voorhees, Somerville, and J. Payne Lowe, Passaic.

Finance Committee.—Dr. R. O. Hasbrouck, Passaic, Chairman; Drs. Ernest Buckley, Orange, and D. J. Dixon, Hoboken.

Publication Committee.—Dr. Geo. W. Pope, Garfield, Chairman; Drs. S. Lockwood, Woodbridge, and M. M. Stage, Dover.

Clinic Committee Newark Meeting.—Dr. Werner Runge, Newark, Chairman; Drs. James McDonough, Montclair, and E. A. Hogan, Newark.

Delegates to Pennsylvania State Veterinary Medical Association.—Drs. L. P. Hurley, Hopewell; Wm. B. E. Miller, Camden; Edgar L. Landers, Camden; Chas. E. Magill, Haddonfield, and H. W. Read, Freehold.

Delegates to New York State Veterinary Medical Society.—Drs. E. Mathews, Jersey City; A. H. McIntosh, Summit; James McDonough, Montclair; James D. Hopkins, Newark, and John Kehoe, Lyndhurst.

Delegates to the American Veterinary Medical Association.—Drs. J. M. Everitt, Hackettstown; A. W. Axford, Naughright; Wm. J. Fredericks, Delawanna; William Gall, Matawan, and S. S. Treadwell, Englewood.

Delegates to the New Jersey State Sanitary Association.—Drs. J. V. Laddey, Arlington; James C. Corlies, Newark, and G. P. Harker, Trenton.

ONTARIO VETERINARY ASSOCIATION.

The annual meeting of this association was held in the Veterinary College, Toronto, Canada, on Friday, December 21, 1900.

The President, Mr. W. J. Wilson, V. S., of London, opened the meeting with a short address, the substance of which was as follows: "The assembling of ourselves together to-day in annual convention is worthy of more than a passing notice. It marks the closing of the 19th century, which has been one of wonderful advancement in veterinary science. At the beginning of the century veterinary surgeons were almost unheard of, and our literature was very limited. Whereas to-day we hold an honorable position among the professions of the world and our literature is very extensive. I am proud to say that the Ontario Veterinary College has kept well to the front. I believe it to be equal in its facilities for instruction to any veterinary college on the continent of America. I am also proud to say that its graduates as a body have well sustained the reputation of their alma mater. This association was organized in the year 1874. It has continued to meet periodically ever since its organization, and its original objects have been constantly kept in view—namely, the mutual improvement of its members in those branches of knowledge specially pertaining to their profession, and the advancement of the position and interests of the veterinary profession in the Province of Ontario."

The minutes of the previous meeting were then read and confirmed. The Treasurer's and Auditor's reports were received and adopted. The Secretary reported the failure of the endeavors to get the act passed in the Provincial Parliament for better legislative measures for the protection of the profession. Also a large amount of correspondence relating to various matters of interest.

A committee was appointed to revise the by-laws of the association, and the meeting adjourned for luncheon.

After luncheon an animated discussion at once commenced, in which many members took part, relating to some alleged violations of professional ethics, and in connection therewith, the committee on revision of the by-laws reported "That our present by-laws be amended by introducing a clause to prevent members of this association engaging in the preparation of any proprietary medicine and placing the same upon the market, and also that any member engaged in preparing secret formulæ, and selling, handling, and disposing of the same shall, by the provisions of this by-law, be disqualified from holding any office in the gift of this association."

This report of the committee was adopted.

Mr. Shillinglaw gave an account of a rather peculiar case in a mare, of very painful swellings appearing some time after parturition. These swellings disappearing and recurring in different parts of the body at intervals, and the mare otherwise in apparent good health.

Mr. Tennent reported still having most excellent results from Schmidt's treatment of so-called "Parturient Apoplexy of the Cow," as he reported last year. He adds a little formalin to the iod. of pot. solution.

Mr. McKay and others also spoke very strongly in favor of Schmidt's treatment.

Prof. Reed, of Guelph Agricultural College, does not believe in Schmidt's treatment. He considers the favorable results reported due entirely to abstaining from drenching the cow while in a comatose state. He always gives his medicines through a tube passed down the œsophagus. He believes in chlor. hydr. and pot. brom., and nerve stimulants.

The sum of $25 was appropriated for a gold medal to be competed for by the graduating class at the coming spring examinations of the Ontario Veterinary College.

The following officers were elected for the ensuing year.

H. S. Wende, President; J. H. Tennent, First Vice-President; W. Steele, Second Vice-President; C. H. Sweetapple, Secretary and Treasurer.

Directors: F. G. Hutton, J. H. George, J. Wagner, W. Shillinglaw, F. J. Gallanough, W. Lawson, D. McMurtry and S. E. Boulton.

Auditors: C. Elliott and J. H. Reed.

Delegates to Industrial Fair, Toronto, Prof. A. Smith and Dr. Duncan.

Delegates to Western Fair, London, W. J. Wilson and J. H. Tennent.

C. H. SWEETAPPLE, *Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order Jan. 2d, 1901, Dr. Robertson in the chair. Members present: Drs. Bell, Bretherton, Delaney, Goubeaud, Grenside, Parry, Ellis and Amling. Visitors: Drs. G. E. Griffin, 5th U. S. Cavalry, Eichhorn and Miller.

Minutes of previous meeting read and approved. Dr. Keller, who was elected Secretary at the last meeting, having declined to serve, Dr. C. E. Clayton was unanimously elected to that position.

Dr. Grenside then read a very instructive paper entitled, "Acetanalid," which was well discussed by the members generally.

Dr. Goubeaud then outlined the malady called "Œsophagismus," which was thoroughly discussed.

Dr. Griffin made an address upon the status of the veterinarian in the army, and on motion by Dr. Bell, seconded by Dr. Delaney, the society sent a telegram to Senators Depew and Platt urging them to give their support to the bill before the Senate to establish a veterinary corps in the army.

Meeting adjourned at 11 P. M. to a surgical clinic, where Dr. Eichhorn performed double neurectomy for the relief of spavin on a subject furnished by Dr. Goubeaud for the occasion.

C. E. CLAYTON, D. V. S., *Secretary.*

MAINE VETERINARY MEDICAL ASSOCIATION.

The annual meeting of this association was held at Lewiston, Jan. 9th, at 7 P. M., President Dr. A. Joly in the chair.

The members and veterinarians present were Drs. Joly, Russell, West, Salley, Blakely, Goddard, Fairbanks, Inglas, Goff, Brackett and Freeman.

The minutes of the last meeting were approved as read.

President Joly, in his interesting annual address, gave some very good advice to the members and urged that a clinic be held at each meeting. The subject of a veterinary bill to be presented during the present legislature was discussed, and Drs. Russell, Joly, and Blakely were made a committee to present the same. It seems to be a strong opinion of the members that if a proper effort were made a bill could be obtained.

Dr. W. E. Fairbanks and Dr. J. H. Goddard, of Lewiston, were elected members of the association.

The following officers were elected for the ensuing year:

President—A. Joly, Waterville.
Vice-President—C. L. Blakely, Augusta.
Secretary—F. E. Freeman, Rockland.
Treasurer—I. L. Salley, Skohegan.
Censors—F. D. Russell, Orono; W. L. West, Belfast, and J. H. Goddard, Lewiston.

Dr. W. L. West read a very able paper on "Surgical Dentistry," which was well discussed.

The next meeting will be held at Waterville in April. There will be a clinic at Dr. Joly's hospital, and papers will be read by Drs. Purcell and Russell.

F. E. FREEMAN, V. S., *Secretary.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The Pennsylvania State Association has appointed as a committee to coöperate with New Jersey's veterinarians in promoting the success of the meeting of 1901, Drs. Harger (President), Pearson, Marshall, Hoskins, and Bridge. The Keystone Veterinary Medical Association will appoint a like committee. This is practical patriotism and sympathetic brotherhood.

In a letter dated Jan. 23, Secretary Stewart writes as follows: "The readers of the REVIEW in this section are noting with much interest the activity of the Eastern associations in the discussion of the approaching meeting of the A. V. M. A. at Atlantic City, and the members and readers are saying to themselves, 'I shall attend this meeting if possible.' I trust you will place before the readers of the REVIEW each month the excellent facilities for veterinarians from the area west of Buffalo to secure most favorable transportation rates to the meeting. If it be thoroughly understood that an excursion rate of $10 is available from Buffalo to Atlantic City and return by the several transportation routes, and with stop-over privileges, I feel sure that many of the members west of Buffalo will take advantage of this privilege, and will begin planning now for that event."

NEWS AND ITEMS.

DR. J. B. BOOMER, of San Francisco, visited veterinary friends in Kansas City on his way home from Chicago recently.

FREDERICK LAMBERTON, D. V. S., of New London, Conn., graduate of the A. V. C., class of '87, died at his home in the early part of December.

THE office and stable of the late Dr. John J. Smith, of Chambersburg, Pa., is offered to let, with instructions to apply at 440 South Second Street.

DR. S. HUTSON CALDWELL, recently resident of Chicago, has accepted an appointment in the meat inspection service in the Bureau of Animal Industry, and has been stationed at Kansas City.

DR. WM. F. LAVERY, of Columbus, Ohio, and formerly a member of the staff of the Ohio State University Veterinary School, is now a member of the meat inspection force stationed at Kansas City.

THE veterinarians of Missouri are very much encouraged over the probable enactment of a practice law by the legislature of that State now in session. The committees in both House and Senate have reported the measure favorably and in all probability it will become a law.

THE "SANITAS" MANUFACTURES, with which we have had some experience, have a pleasant odor, give off active oxygen into the atmosphere, are germicides and powerful deodorizers and are especially suited for use as disinfectants in stables, kennels, etc. They are put up in a variety of forms to suit all requirements.

EXPORTS OF LIVE CATTLE from the United States during the month of December last amounted to 35,186 head, as against 22,872 exported in December of 1899. The valuation placed on those exported in December of 1900 was $3,152,221 as against $2,025,850 for those sent abroad in the same month of 1899. Exports for the entire year of 1900 were 361,179 head valued at $32,400,188 against 336,444 head valued at $28,677,652 in 1899.

THE IOWA REGISTRY LAW.—The books of registration under the recently passed law, whereby all graduates and others who had been practicing veterinary medicine for a livelihood for a specific number of years might become registered prior to the books being closed to all but those with diplomas, were closed on Jan. 1, 1901. President W. A. Heck, of the Board of Veterinary Medical Examiners, furnishes us with the result of the registration as follows: Non-graduates, 364; graduates, 159.

TAIT BUTLER, V. S., late in charge of inspection at Cudahy, Wis., has resigned from the Bureau of Animal Industry to accept the position of professor of veterinary science and biology at the Kansas State Agricultural College and Experiment Station, Manhattan, Kansas. In conjunction he becomes State Veterinarian of Kansas. We tender our congratulations to the doctor and to the Commonwealth which has been so fortunate as to secure his energies and broad knowledge. Dr. S. Sisson, who was assistant to these positions under Dr. Paul Fischer, retains his functions under Prof. Butler.

PHILIPPINE MEAT INSPECTION.—We have received through the courtesy of Dr. John G. Slee, Assistant City Veterinarian of Manila, a copy of the *Manila Freedom* of Dec. 2, in which is contained the new regulations issued by the Board of Health under the direction of the Provost Marshal General governing the inspection and slaughter of animals at the "matadero." These regulations were submitted to the Board by Dr. W. W. Richards, City Veterinarian, and Dr. Slee, and are a great improvement over the old ones. The order reads as follows: (1) The inspection of all animals for slaughter shall be under the direction of inspectors appointed by the Board of Health of Manila, P. I. (2) All persons holding licenses for slaughtering animals in the Manila matadero, for food purposes, are subject to all the regulations, orders, and instructions that may be made by the Board of Health for carrying on the work of inspection at the matadero. (3) All animals for slaughter must be at the matadero by 4.30 P. M. of each day in order that an ante-mortem examination can be made. (4) The inspector in charge of the matadero shall be present at 4.30 P. M. in order to make the ante-mortem examination. (5) All animals presenting a diseased condition upon ante-mortem examination shall be removed from the matadero unless presenting symptoms of a contagious or infectious character. (6) No animal presenting symptoms of advanced pregnancy shall be slaughtered until ten days after parturition, and the owner will not be permitted to remove such animals from the matadero except when they are afflicted with or have been exposed to the contagion of any disease. (7) Slaughtering shall commence at 5 P. M. each day. (8) The inspector shall hold post-mortem examination every day and on every animal slaughtered. (9) The head, tail, caul or fat enclosed in the omentum of the animal and all other portions that are used for food products shall be preserved in such manner as to preserve their identity until after post-mortem inspection has been completed in that they may be identified in case the carcass is condemned. Should the animal on said post-mortem examination be found to be diseased or otherwise unfit for human consumption, the entire carcass shall be cremated. (10) All animals found at post-mortem examination to be affected as follows are to be condemned and the carcasses cremated: *a*, Hog cholera and swine plague; *b*, cysticircus; *c*, anthrax; *d*, rabies; *e*, pyæmia and septicæmia; *f*, mange and scab in advanced stages; *g*, advanced stages of actinomycosis; *h*, inflammation of the lungs, the intestines, or the peritoneum; *i*, extensive or generalized tuberculosis; *j*, rinderpest; *k*, any disease or injury causing elevation of temperature or affecting the system of the animal to a degree which would make the meat unfit for human consumption (food). Any organ or part of a carcass which is badly bruised or affected by tuberculosis, actinomycosis, cancer, abscess, suppurating sore, or tapeworm cyst, must be condemned; *l*, animals in advanced stage of pregnancy or which have given birth to young within ten days; *m*, animals too emaciated and anæmic to produce wholesome meat; *n*, all unborn animals must be cremated.

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,
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REVIEWS TO EXCHANGE.
I have the following duplicate numbers of the AMERICAN VETERINARY REVIEW, which I would like to exchange for numbers *below* Vol. X:—Vol. XI, No. 5; Vol. XIV, No. 3; Vol. XV, Nos. 3 and 5; Vol. XVIII, No. 5; Vol. XIX, Nos. 11 and 12; Vol. XX, No. 2; Vol. XXI, No. 2; Vol. XXII, No. 1; Vol. XXIII. No. 6. Correspondence solicited for earlier volumes. Address WM. H. GRIBBLE, D.V.S., Washington C. H., Ohio.

AMERICAN VETERINARY REVIEW.

MARCH, 1901.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

CLOSING VOLUME XXIV.

Subscribers to the volume which closes with this number can have, we think, but little reason to find fault with the publishers, as it has been the largest in size and in importance of contents of any that have ever been issued in the quarter of a century it has existed. In the twelve monthly numbers comprising Volume XXIV there have been printed 50 leading editorial articles upon scientific and economic subjects, the latter including topics appertaining to the welfare of the profession at home, in the State and National legislatures, association work, and wherever a discussion could be of service to a subject by bringing it prominently before our readers. In the department of "Original Articles" there have appeared as the productions of writers of both hemispheres 42 separate papers, some of them requiring three or four issues to complete the subject, occupying in all 360 pages of the REVIEW. While our readers have not availed themselves of our oft-repeated invitation to build up our practical knowledge of pathology by reporting their interesting cases, the department of "Reports of Cases" has contained 30 of such contributions, many of them accompanied by photos, which we have reproduced to elucidate the subject of the report. The "Department of Surgery" has been a feature of the volume, and he who preserves the twelve numbers will have a valuable treatise upon veterinary surgery of the modern scientific kind, to be supplemented in Volume

XXV by greater elaboration of the more practical operations. To render the work of the Drs. Merillat of more value there have appeared about 40 pen-and-ink drawings illustrative of the procedures described in the text of the department. Dr. Eichhorn, although only assuming charge of "German Review" in the October number, furnished 26 abstracts from the German veterinary press, while Prof. Liautard has kept up his old-time energetic search of the literature of many lands in quest of items which would add to the knowledge and interest of his American readers. In the English journals he has found 25 articles which he deemed worthy of perpetuation in our annals; 30 in the French publications, 23 in Italian papers, while the Belgian extracts number 4 and the Russian 6. The senior editor has contributed 16 abstracts to "Review of Biology," and has reviewed most of the works bearing upon veterinary science which have appeared during the year. Correspondents have contributed letters upon various phases of professional life to the number of 18, while the news of colleges has been told in eight articles. We have tried very diligently to report the proceedings of the veterinary associations of the entire American continent, but many have escaped us through the failure of the Secretaries to send in the accounts of their deliberations. However, 53 reports of meetings or items relating to them have appeared during the year, which has occupied many pages of the journal. "News and Items" is a chatty little department which keeps in touch with the personal side of professional life, and contains very many interesting items which cannot find a place in any of the regular departments. Add to this array of literature a number of special articles upon contemporaneous events, and the story of Volume XXIV is told. Elaborate each of the foregoing departments to a considerable extent, and add some special features soon to be inaugurated, and the next volume can be anticipated. Ask yourself the serious question: "Can I afford to be without Volume XXV of the REVIEW?" and we are willing to abide by your decision.

EUROPEAN CHRONICLES.

THE "HORSE SICKNESS" OF SOUTH AFRICA is a disease which seems so far unknown in Europe, but causes much trouble among horses in South Africa, and has proved such a precious assistant to the Boers at the beginning of the war in the Transvaal. It has been the subject of much study, not only from gentlemen now at the seat of war, but also from European veterinarians, and among the first Prof. Nocard. At a recent meeting of the Société Centrale he contributed a communication, from which we make the following extracts: "Horse sickness has not only an interest of actuality, but also a great one from the scientific point of view. Raging during summer, it attacks almost all horses recently imported, and kills most of them; those that recover are called 'salted,' and have a great value, being immunized against another attack.

"It seems to be a special disease of solipeds, but while it is always fatal to horses, donkeys almost always resist it, and in mules more than half recover. Other species seem refractory to it, although sheep, goats and bovines have been inoculated with it. The first symptoms appear eight or nine days after infection by progressive hyperthermia, with nightly remissions; this symptom often escapes attention. When the horse is recognized as ailing, death is already near; it is sometimes so rapid that there is scarcely time to see that he is sick; during several hours there are serious disturbances in the respiration, anxiety, deep prostration; then a foaming, whitish or rosy discharge, and sudden death. This is the *dunpaardziete* of the Boers. In another form, less rapid, the *dikkopziete*, death is preceded by a more or less large œdema of the head and neck, the other troubles appearing later.

"At the post-mortem there is serosity in the pericardium, in the cellular tissue of the lungs, under the pleura, in that of the head and neck in the slow form.

"The disease is easily inoculated, and although it is almost always fatal to all imported horses, it is very easy to protect them from it. All that is necessary is to bring them indoors in a well closed stable in the evening before sunset and not allow them to go out in the morning until after sunrise. It is the application of the prophylaxy of paludism in man to horse sickness of horses which the Boers knew of. A variety of mosquito (*anophiles*) is the agent of propagation of paludism, as has been demonstrated by Laverau and practically proved by Patrick Hanson and by Grossi, and by comparison with them it is proper to think that probably 'horse sickness,' is also like paludism, due to the sting of some noctambulist insect which is yet unknown. What is the virulent agent is yet ignored. All that is known is that the blood of the ticks is virulent, and that inoculated in minute quantity it gives rise to the disease with its ordinary fatal end, its symptoms and its lesions. And not only is it virulent, but conserves its virulency almost forever."

Nocard has produced the disease with blood that he had kept for five months and for two years and four months.

What is the agent of this so well marked and lasting virulency? To this date no one can tell, and all researches and experiments to cultivate it have failed.

Until lately, all attempts at treatment or vaccination have been without results. In a recent work, Eddington related experiments which he has made and which seem to be encouraging. In mixing virus treated with care with a quantity of serum from horses highly immunized, he has succeeded in polluting 14 horses out of 23. These experiments were, however, made in the laboratory and it will take some time before they can be applied in practice.

The observations and experiments of Eddington are found *in extenso* in the *Journal of Comparative Pathology*, by Prof. J. McFadyeau.

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SEPTIC VIBRIO AND THE BACTERIA OF SYMPTOMATIC ANTHRAX (*Bacterium Chauvosi*) present morphologically close resemblances. The well known etiological conditions that predominate in the development of gangrenous septicæmia are found in symptomatic anthrax, and the lesions of those two diseases present perfect similarities. For those reasons the two pathogenous agents, in bacterian classification, have been brought together and even sometimes identified. The investigations of Roux and Chamberland, of Kitasato and Duenschmann show the interest in the comparative study of these two germs, and recently the subject has been taken up again by two well-known authorities—Profs. Leclainche and Vallée, of the Veterinary School of Toulouse. Their researches upon symptomatic anthrax have brought them to study the relations of both germs to the double point of view of the special properties of each and of the immunity against the diseases they give rise to. It is in that way that they were called to consider their morphology, the various methods of immunization by vaccine viruses with toxines, and the use of serotherapy, which demonstrated to them that to that point of view, septic vibrio and *B. Chauvosi* proceed in an identical manner. The effects upon the agglutination upon the cultures have also received their attention. The conclusions advanced by these authors are that:

(1) There exists between the bacteria of symptomatic anthrax and the septic vibrio, biological relations which are very close. However, it is possible to differentiate them: the septic vibrio gives, in the serosity of the specific œdema and in the peritoneum of cobaye, long threads which are regularly missing in symptomatic anthrax.

(2) Immunization against septic vibrio can be extended to all the methods which are applied to symptomatic anthrax.

(3) Immunizing serums against anthrax and gangrenous septicæmia have a strictly specific action. The observations made on the agglutination with the same serums, is also specific.

(4) In relation to anthrax, immunization does not imply resistance to the septic vibrio, and reciprocally animals vaccinated against septicæmia are not against symptomatic anthrax.

Those experiments have a great bacteriological value, throw an important light on the subject, and are valuable additions in a scientific point of view. After all, the study of the *infinitively small* is a field which for many years to come will not be exhausted, if it will ever be. A. L.

PUSILLANIMOUS PESSIMISM.

After reprinting several items from the REVIEW giving accounts of the return of a number of American veterinarians from journeys to South Africa in charge of English transports of horses and mules, the *Veterinary Journal* (London) makes the following comment :

"It would seem from the above that the supply of veterinary surgeons from Britain is now exhausted, or that the American veterinary surgeon, who does not possess a diploma recognized in Britain, is a cheaper or a better man. It must be remembered that these Americans go in *veterinary* charge of British horses and mules ; that they associate with the transport and ship's officers as social equals, and are cabin passengers ; and that their fare is paid from any part of America to the port of embarkation in America, and their return fare is paid from Africa home again. Has the Council anything to say in this matter ? "

The first sentence is capable of various interpretations. As a naked proposition it is evidently true that an American veterinary diploma will not admit one to practice in Britain, and just as true that a British veterinary diploma does not license a veterinarian to enter practice in the State of New York—these questions being regulated here by the State, not by the nation. In former times America drew heavily on foreign countries for veterinary teachers, investigators and practitioners, but that has ceased ; and, there being no important movement in either direction, the question of recognition of diplomas is, from a practical standpoint, of no interest.

Turning to the table of contents of the same issue we find eight contributions to the list of "Original Papers," three American, apparently three British, and two from Continental Europe. The American veterinary profession craves no higher recognition. Among nearly twenty veterinary schools in

America there is well-nigh endless variety—from plainly disreputable diploma mills to veterinary departments in our best universities, in which the requirements for entrance, length of course, equipment and requirements for graduation will compare favorably with British schools. The suggestion of cheapness of American veterinarians for temporary service in transporting horses from the United States to South Africa will depend on the point of view. Americans are 3000 miles nearer the point of embarkation than the British veterinarian. They accept temporary service for various reasons—as a vacation and rest from ordinary routine work, or from a worthy desire for the experience. Some American practices only continue a part of the year and leave practically nothing to do at a given season, so that the trip may be a financial gain, and it would not be strange if among these were some "cheap" men. That we have them there are few who will deny.

One thing is certain: the average veterinarian of America is not, as a rule, applying for temporary employment in the British service at and simply for the rates paid, and we have no reason to believe that the head of the British remount service in America thinks that he is generally securing representative veterinarians of extensive experience; nor have we any ground to assume that if a British applicant were in calling distance he would not be preferred over an American.

THE BUREAU OF ANIMAL INDUSTRY.

In the debate upon the Agricultural Bill in the House of Representatives on January 29, Mr. Corliss, of Michigan, made an attack upon the work of the Bureau of Animal Industry. The growth of this bureau and the appropriations therefor, he declared, were altogether too rapid. He made a point of order against the increase of salary of the chief of the bureau from $4000 to $4500, and it went out of the bill. He also moved to cut down the appropriation for this bureau from $1,050,000 to $1,000,000. Mr. Wadsworth and Mr. Williams, of Mississippi, warmly defended the appropriation. The latter expressed his surprise that Mr. Corliss' attempt at retrenchment should come in connection with the Agricultural Department, of all departments, and in this particular bureau of all bureaus. This bureau, he said, had done more good than all the others. His own country was not interested in it. The South raised no cattle for export, but with the countries which were to-day taking our meat products, especially Germany, inclined to make war upon our meat, the absolute necessity for the strictest sort of surveillance must be apprehended. After this incident a host of defenders came to the rescue of the Bureau of Animal Industry and the amendment was overwhelmingly defeated.

"TORSION OF THE UTERUS" in mares and cows has for several months been a favorite subject among numerous correspondents of the REVIEW—all reporting cases from their practices, showing the difficulties encountered, and all pursuing different methods of correcting the accident. These reports are of fascinating interest to practical veterinarians, and are eagerly read and thoroughly digested by them. Possibly no attempt to relieve the condition was more novel and successful than that described in the current number by Dr. McCrank, of Plattsburgh, N. Y., wherein the operation of laparotomy was performed, the uterus seized and returned to its normal position, and delivery secured through the natural passages, followed by rapid and complete recovery.

"EXPERIMENTS IN TREATING INFECTIOUS MAMMITIS IN THE COW," by Dr. E. Zschokke, of Zurich, translated by Archibald R. Ward, a student at the New York State Veterinary College, is in hand awaiting publication in the April REVIEW. Following closely upon the excellent paper by Prof. W. L. Williams (February REVIEW), it will make a valuable addition to the line of thought and research outlined in that article. It is of especial value, since it presents quite forcibly a new idea in therapeutics to English readers (auto-therapeutics), while the character of the investigator, Zschokke, is very high. The translator has done a great deal of work along the line of dairy bacteriology, being a teacher of this subject in the Agricultural Department of Cornell while a student in the veterinary college.

ORIGINAL ARTICLES.

A BACTERIOLOGICAL STUDY OF FISTULOUS WITHERS, BOTRYOMYCOSIS AND INFECTED WOUNDS IN THE HORSE.

By Carl W. Gay, D.V.M., Syracuse, N. Y.

It is customary at the New York State Veterinary College to make, as far as possible, bacteriological examinations of the cases presented at the college clinic. The results of certain of these investigations have already been published.* The awarding of a University Fellowship to the Department of Veterinary Science has made it possible to conduct, during the past year, more specific investigations concerning the etiology of wound infection.

The cases herein described, from which our data was obtained, include all of those which, for convenience, may be discussed in the following groups, viz.: fistulous withers, poll evil, scirrhous cord, deep shoulder abscesses, infected open wounds and infected operative wounds. Examinations were also made of the skin after thoroughly disinfecting it for operation.

In this work the usual culture methods were employed, viz.: tubes of bouillon and slant tubes of agar were inoculated, and sub-cultures made from the colonies which developed on the surface. In some cases, agar plate cultures were used, but in most instances there was no difficulty in securing well isolated colonies on the agar slant. In using agar plates, some difficulty was experienced in securing growths of streptococci. It was observed that in some instances bouillon cultures, which failed to develop any streptococcus colonies after undergoing the plating process, would do so when simply transferred to tubes of agar. Throughout this work, the extremely delicate nature of the streptococcus growths in the various cultures, requiring frequent transfer to fresh media, was noticed The organisms obtained were studied on the various media, but in many instances, as of the pus cocci, when there seemed no question as to their identity, diagnosis was based on the microscopic examination and the growths in bouillon and on agar.

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* Moore: "Observations Concerning the Significance of Streptococci in Comparative Pathology."—Am. Vet. Review, Jan.–March, 1900.

In collecting the material or in making the cultures direct from open wounds, all possible precautions against external contamination were taken. As aseptic surgery is practiced in the clinics of this college, all tissues removed for examination were obtained in a sterile condition, in so far as the invasion of any bacteria from without was concerned, and these precautions were maintained until cultures had been made from whatever purulent material might be contained within. In making cultures from abscesses, which were opened for the first time, the field was first thoroughly disinfected, incisions made with sterile instruments, and the culture medium inoculated immediately from the pus contained within the abscess.

When we had to deal with open wounds, which were already discharging, the cultures were made from the points where the discharge was freshest and least exposed to dust and external influences generally, or when possible a sufficient quantity was pressed out by manipulation of the tissues surrounding the wound, and the culture medium inoculated from this directly.

FISTULOUS WITHERS.

This is one of the commonest and at the same time most obstinate affections with which the veterinarian has to deal. We have had the opportunity of observing these cases in all types and stages of development. The notes on six are appended.

Case I.—Clinic case 1921, Sept. 28, 1899. A bay pacing mare, weight, 900 pounds ; 8 years old. Had been used for general farm and road work. About August 1, 1898, a hard round tumor was noticed on the left side of the neck, just anterior to the withers. The condition of this tumor remained unchanged till April 1, 1899, when it became enlarged, very tender and fluctuating. The tumor was subsequently twice operated upon by the local veterinarian, and before the incisions had healed the withers became greatly swollen. When presented at this clinic, the region of the withers was enormously thickened, very tender, and discharging from an open wound on the left side, anterior to the withers. Tubes of bouillon and agar were inoculated from the open wound and from the lymph like material discharged when the enlarged withers were incised. Those from the open wound developed into cultures from which were isolated a streptococcus, and a white micrococcus.* Several of the tubes inoculated from the closed abscesses remained sterile for a long time, but others finally developed into cultures of streptococci.

Case II.—Clinic case 2138, Dec. 2, 1899. Patient was an aged bay mare, weight 950 lbs., reported to have been at one time a runner. There is at present one fistula opening on the right side of the neck, and another opening a few inches posterior to this one. This condition has existed for three years and during that time various methods of treatment have been employed without success.

Both fistulæ were freely incised, making a very extensive wound in the posterior cervical region. There was a great amount of old cicatricial tissue of a very dense nature in the wound. At places it was calcareous and very hard to cut. Some pieces were removed aseptically for the purpose of examination and study. Tubes of bouillon and agar were inoculated with the pus discharging from the wounds prior to operation and at different times afterward. A streptococcus and a white micrococcus were isolated each time.

Case III.—Clinic No. 2228, Jan. 25, 1900. Patient a bay horse, weight 1000 lbs., 6 years old ; has been used of late in quite heavy draft, hauling logs. About sixteen days ago the owner noticed a swelling, five by ten inches in diameter, in the region of the withers, showing most extensively on the right side. On the left side the swelling was about the size of a man's fist. The two were apparently communicating. Upon aspirating the right with a trochar and canula, large lumps of coagulated lymph, together with clear serum, were drawn off. The treatment at first was to evacuate by means of trochar and canula, injecting tincture iodine into the abscess cavity, but this was finally abandoned and free incision of both sides of the withers resorted to. Tubes of bouillon and agar were inoculated from the pus first aspirated, but they remained sterile. A streptococcus and a white micrococcus were isolated from cultures made from the discharge after operation.

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* In giving the results of the bacteriological examination of the following cases, we have followed Migula's classification of bacteria, in which any spherical organism dividing in more than one plane is classed as a micrococcus. Hence, the white and yellow micrococci we mention may be considered synonymous with staphylococcus albus and staphylococcus aureus of other writers.

Case IV.—Clinic No. 2246, Feb. 5, 1900. Patient a brown horse, weight about 950 lbs., 10 years old; was bitten on the withers last autumn. A swelling of the part soon followed, which persisted till the time the case was presented at the college clinic.

The region of the withers was very much swollen, more so on the right side than the left, fluctuating and tender. Right side was punctured with a trochar and canula, and a large amount of coagulated lymph drawn off. Ten days later the right side was incised and the abscess found extending across to the left side, which was also freely opened in two places.

Tubes of bouillon and agar inoculated from the material aspirated when the abscess was first opened were not sterile in this case, but there were isolated from them a streptococcus, a white micrococcus and a yellow micrococcus. These same organisms were also isolated from cultures of the pus made after the abscess had been opened and suppurated freely.

Case V.—Clinic No. 2253, Feb. 9, 1900. Patient was a brown mare, 8 years old, weight 1050 lbs., used for general farm work. She was a half sister to the brown horse entered as clinic case 1958, poll-evil, Case VIII. These two animals worked together and were stabled together, but each had its own harness, and these were never interchanged. The swelling of the mare's withers was first noticed August 1, before the horse's poll was seen to be affected, but the swelling remained hard and did not seem tender. About three weeks before coming to the college clinic the swelling began to soften. The owner had had an old mare that had a swelling about the size of a goose egg on the neck, just back of the poll, but she was killed without any investigation as to the nature of the trouble being made. When the first mentioned brown mare was seen at the college clinic, the enlargement of the withers was fluctuating and tender. This was incised and found to resemble a large lymph abscess, containing a large amount of coagulated lymph and purulent material. Tubes of bouillon and agar inoculated from this remained sterile. Tubes of bouillon and agar were inoculated from the pus after the abscess had been opened and suppurated freely. A streptococcus and a white micrococcus were isolated from these cultures.

Case VI.—Clinic No. 2430, April 24, 1900. Patient was a small bay mare, weight 900 lbs., 9 years old, and used for farm and road work. The trouble had existed for about four months. Owner claimed the case had never been operated upon, but there were three suspicious looking scars to contradict his statement. When first seen at the clinic the wound was discharging through an external opening at the centre of the external scapular region on the right side. Upon examination, after confining the animal upon the table, the fistulous tract was found to lead up over the cartilage of prolongation, then back three or four inches, also downward and forward on the median surface of the cartilage. There was a small sinus on the external surface of the cartilage, and also a cavity with a distinct sac, anterior to the scapula. All of these tracts were laid freely open to insure proper drainage. Tubes of bouillon and agar were inoculated from the discharge and from the wound after operation, and from these were isolated a streptococcus, a white micrococcus and a yellow micrococcus.

Case VII.—Clinic No. 2501, May 12, 1900. Patient, a black horse, weight 1000 lbs., 10 years old; had been running out all winter and when taken up about three weeks ago the enlargement on the withers was discovered. A blister was applied by the owner, but no opening made. When presented at the clinic there was a swelling on the right side of the withers about the size of a man's fist. Upon incising the swelling numerous fistulæ extending in different directions were found and laid open to insure drainage.

Tubes of bouillon and agar were inoculated from the pus, which remained sterile. A streptococcus and a white micrococcus were isolated from the pus after the wound had been opened some time.

Another affection closely allied to fistulous withers, although in our experience not so common, is that popularly known as poll-evil. From what we have learned of these two diseases we believe their etiology and morbid anatomy to be very similar in character, the chief difference in them being in the seat of the lesion. Hence we have considered the two under one heading. We have had occasion to study but two of these cases during the past year, the notes on which are given.

Case VIII.—Clinic No. 1958, Oct. 10, 1899. Patient was a brown horse, weight 1100 lbs., 8 years old, and used for general farm work. Was castrated when two years old and since that time there has been a tumor in the scrotal region, but as this had never caused any inconvenience to the animal little attention was paid to it.

About August 1st there was noticed on the poll a swelling about half the size of a goose egg; this has gradually enlarged until at the present time the whole region of the poll is greatly swollen and discharging from two openings. Each side can be probed for a distance of two and one-half to three inches. From the tubes of bouillon and agar inoculated from the discharging pus were isolated a streptococcus and a white micrococcus.

Case IX.—Clinic No. 2443, April 27, 1900. The patient, a sorrel horse, weight 950 lbs., 14 years old, was trading stock and hence nothing was known of the history of the case. When presented at the clinic there was a small opening at a point on the second cervical vertebræ. This opening was enlarged to admit the finger and the fistulous tract found to extend about three inches posteriorly and also a short distance anteriorly. This was laid open for its whole extent. Tubes of bouillon and agar were inoculated from the discharge and a streptococcus and a white micrococcus were isolated therefrom.

BOTRYOMYCOSIS (SCIRRHOUS CORD AND SHOULDER ABSCESSES).

In the title we have classed scirrhous cord and deep shoulder abscesses together as botryomycosis. They seem to be the two commonest forms of this disease as it is described by those who have worked upon it.

Scirrhous cord is a disease which seems to be decreasing in prevalence as the more modern and scientific methods of aseptic and antiseptic castration are adopted. The duration of the disease often dates back to the time of operating; the wound never having healed completely, but a fistula remaining. On the other hand, in older animals it often happens that nothing is noticed amiss until perhaps several years after castration. Scirrhous cord is capable of producing all degrees of disturbance, from simply a tumor in the groin or scrotum, causing a wide straddling gait, to a fatal pyæmia as noted in the two cases below, Nos. XI and XII.

Case X.—Clinic No. 1958, October 10, 1899. Patient, a brown horse, weight 1100 lbs., 8 years old (same as case VIII, poll-evil). Animal was castrated when two years old and since that time there has existed a tumor in the scrotal region, but this has never caused any inconvenience to the animal. The tumor was punctured with a trochar and canula and quite a quantity of serum drawn off. The tumor was then removed and found to be composed of the thickened walls of white fibrous tissue and containing some purulent débris within. Tubes of bouillon and agar were inoculated from the aspirated serum and from the pus within the cord. Tubes of bouillon and agar inoculated from the aspirated serum remained sterile as did also those inoculated from the interior of the cord.

Case XI.—Clinic No. 2016, October 26, 1899. Patient, a grey yearling colt, castrated by block method in May last. The wounds have never healed and at times the end of the cord may be seen projecting through the scrotal wound. Animal placed on the table, anæsthetized and the affected cords removed. Right one was the largest, being composed of tough white fibrous tissue. Upon section it was found to contain no pus, but was hæmorrhagic in the centre and in some places very dark and discolored as if necrotic. The condition of the left cord was about the same as the right, only not quite as bad. Tubes of bouillon and agar were inoculated from inside the cords after removing them. From these cultures were isolated a streptococcus and a white micrococcus.

This colt was returned December 4th, suffering from pneumonia and discharging a considerable amount of pus from the nostrils. Diagnosis was pulmonary abscess, and tracheotomy was performed and the lungs irrigated with peroxide of hydrogen. Media inoculated from the pus in the trachea gave pure cultures of a streptococcus. The post-mortem revealed the following lesions: at posterior border of the right lung was an abscess some fourteen inches in diameter and containing nearly five liters of sanguinous pus. There existed adhesions between the lung, diaphragm and the liver. The abscess was limited posteriorly by the capsule of the liver, anteriorly by the diaphragm. Toward the inner margin of the right lung was a direct communication with a bronchus. Tubes of bouillon and agar were inoculated with the pus contained in this abscess and a streptococcus only isolated from these cultures.

Case XII.—Clinic No. 2037, October 31, 1899. Patient, a black horse, weight about 1000 lbs., 6 years old, was brought to the clinic on account of his very poor condition. He was castrated when three years old and last April there appeared a swelling on right side of the sheath which broke and ran for about six days and then healed. About two weeks later it broke on the other side and has been discharging ever since. Animal stretches to urinate. A probe can be passed up the fistulous opening for at least ten inches and this is found to communicate inside with a lobulated tumor much larger and extending toward the external angle of the ilium.

These tumors could be located per rectum. The horse was put on a course of K. I., ℥i once (or twice) daily, and discontinued at intervals as bad effects were noticed. This treatment was continued from Nov. 1 to Jan. 22, when operation was resorted to. There was some diminution in size and softening of the tumors noticeable at this time. Animal was placed on the table, anæsthetized and the highest tumor on the right side opened by an incision through the abdominal wall about two inches anterior to the external angle of the ilium. A quantity of rich yellow pus was discharged. Tubes of bouillon and agar were inoculated from this pus and a yellow micrococcus isolated. Then a tumor on the floor of the pelvis was opened through the median line, but no pus discovered. Still another was opened by cutting through the flank and working up to it. This also contained no pus. These wounds were dressed by irrigating with sublimate solution till Feb. 25, when the horse was again subjected to operation. A tumor on the left side was reached through the inguinal ring, but it contained no pus. Horse was then rolled over on its right side, and a tumor not reached heretofore was opened and a large quantity of pus removed. This pus was of a very different character from that taken from the first abscess on this side, being creamy and not so yellow colored as the first. From cultures of this pus a streptococcus was isolated. Cultures made from the wound where the first abscess was opened contained in addition to the yellow micrococcus of the original pus, a streptococcus and white micrococcus. Cultures from the suppurating wound where the second abscess was opened contained a white micrococcus and a streptococcus.

Upon post-mortem examination there were found a series of multiple abscesses, ranging in size from a hickory nut to a man's fist, located in the pelvic region, which had not been reached by previous operation. The tubes of bouillon and agar inoculated from one of the largest of these were pure cultures of a yellow micrococcus. The right kidney was the seat of a large abscess containing about a pint of pus. Pure cultures of a streptococcus were obtained from this pus.

Case XIII.—Clinic No. 2264, Feb. 16, 1900. Patient, a bay roadster colt eighteen months old, was castrated last spring by the clamp method. The wound healed readily, but the owner noticed the scrotal sac to be filled, as he supposed, with intestine. Upon examination the supposed intestine was found to be the tumefied cord with the end adherent to the skin. An incision was made at this point, the cord dissected from the surrounding tissues and removed with the emasculator. The wound was tamponaded with iodoform gauze and sutured. Following day the sutures were cut and the accumulated bloody serum removed. The cord was very much thickened and tumefied and composed principally of white fibrous tissue. Tubes of bouillon and agar inoculated from inside the cord after removal remained sterile. From tubes of bouillon and agar inoculated from the suppurating wound after the cords were removed, a streptococcus and white micrococcus were isolated.

Case XIV.—Clinic No. 2482, May 8, 1900. Patient, a bay cob, weight. 1000 lbs., eight years old; used only for carriage work. Was purchased in a pair six weeks ago as sound. Two days ago the owner noticed a swelling in the scrotum and some discharge therefrom. Horse has traveled peculiarly behind, previous to this time. Upon examination a large tumor is felt in the right groin, none in the left. No tumefaction felt inside by rectal examination. There was a small fistula in the right side of the scrotum, which discharged at intervals. The tumor was removed in the usual way. The tumefied walls of the cord were composed of glistening white fibrous tissue. Walls vary from one-quarter to one-half inch in thickness. Cavity running through the centre of the cord is about one-quarter of an inch in diameter. There were soft areas at certain points inside somewhat resembling actinomycosis.

Tubes of bouillon and agar inoculated from the discharge before operating developed into pure cultures of a white micrococcus. Those inoculated from inside the cord remained sterile. However, iodine had been injected before operation, which might account for this. Media inoculated from the wound three days after operation developed into cultures from which a streptococcus and white micrococcus were isolated.

Case XV.—Clinic No. 2491, May 10, 1900. Patient was a black gelding, weight 1050 lbs., 7 years old, and used for farm work. Was castrated when two years old, and nothing was noticed amiss until last fall, when a slight discharge was noticed after the horse had been lying down. Upon examination a hard tumor was found extending up in the groin to the external inguinal ring on the left side. Rectal examination revealed nothing except a slight dragging upon the spermatic artery and cord. The tumor was all extra-abdominal and about three by one and one-half inches in size. Upon cutting open after removal the walls were found thickened and composed of a thick white fibrous tissue with soft areas at points on the inside. Pure cultures of a yellow micrococcus were obtained from the pus contained in the abscess.

Case XVI.—Clinic No. 2529, May 18, 1900. Patient, a brown two-year-old colt; was castrated about a year ago. When seen in the clinic there was a soft tumor in the scrotum which evidently contained fluid. The cord was removed and found to be dropsical. The walls were not markedly thickened, but were distended to about the size of a large hen's egg with a serous fluid from which tubes of bouillon and agar were inoculated. These cultures remained sterile.

Here, in connection with scirrhous cords and deep shoulder abscesses, may be a proper place to discuss a disease which we know very little of and concerning which there seems to exist a diversity of opinion, viz.: botryomycosis. It is defined by Gould as "a disease of horses in which fibromatous nodules form in the lungs. It is dependent upon the presence of a micro-organism called botryomyces."

Jensen* considers it as closely allied to actinomycosis, and says regarding it: "Actinomycosis is found in man, cattle and swine and only in the horse by inoculation, while botryomycosis is peculiar to the horse, and after surveying the literature we find it only once observed in cattle. But like actinomycosis it manifests itself as newly-formed tissue in the form of granulating nodes and nodules, in the centre of which is a disintegrating pus-like mass, and which is more or less surrounded by masses of embryonic tissue. The knots are in some cases well defined in their margins, while in other cases they are continuous with the surrounding tissue, without any distinct outline. As a rule the disease remains local and spreads only to the adjacent tissue. It has, however, been observed as metastatic in the internal organs."

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* *Zeitschrift für Thiermedicin*, Bd. XVIII.

Notwithstanding the fact that this affection has, from an early date, received the attention of a number of investigators, the classification of the specific cause has not as yet been made clear. All seem to agree that the disease is due to a micro-organism, spherical in shape and resembling micrococci in morphology, but they speak of it always as a fungus and not as a bacterium. Some have taken exception to this, however, and declare that they have found only the common pus cocci in the so-called botryomycotic lesions. In reviewing the literature available upon this subject we find Bollinger,* in 1870, the first to propose the name botryomycosis for a disease which he described as causing fibromatous nodules in the lungs of horses. The derivation of the word is from the Greek (*Βοτρυς*), a bunch of grapes, and (*μυϰης*) a fungus. Bollinger's discovery was considered at that time as of little account. In 1878 Rivolta† found fungi in the spermatic cord of horses after castration, which he termed *discomycis equi*, and which he thought allied to actinomycosis. They soon came to be considered as belonging to the micrococci and not to the ray fungi. Rabe‡ described what he called *micrococcus botryogenus*, and Johne§ called them *micrococcus ascoformans.* Johne also proposed calling the neoplasm a mycofibrom or mycodermoid. Kitt||

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* *Virchow's Archives*, Bd. XLIX.

† *Giornale di Anatomia* and *Fisiologia*, 1884.

‡ *Deutsche Zeitschrift*, Bd. XII.

§ *Deutsche Zeitschrift*, Bd. XII.

|| *Friedberger & Fröhner* (Hayes' Translation.)

obtained tufts closely resembling *staphylococcus aureus* from cultures of the supposed botryomyces and was able to produce the characteristic botryomycotic lesions in a horse by inoculations of a pure culture of this organism. Hell* considered the myces as simply tufts of pus cocci and bases his conclusion on the fact that in every case he isolated the *staphylococcus pyogenes* from the supposed botryomycotic lesion.

Contrary to Jensen, who says botryomycosis is peculiar to equines, Dr. G. Newman† speaks of botryomyces being found in the spermatic cord, skin, lungs and not rarely in the udder of horses and *cattle*. Also in the spermatic cord of pigs. Observers have found in horses new growths in the superior maxillary sinus and in the tail, multiple tumors extensively disseminated over the entire skin, implicating the subcutis, and infection of the muscles, bones, pluræ, and the connective tissue of the pelvic cavity, uterus, etc.

Jensen holds the commonest form of muscle botryomycosis to be the "Brust beule" with which all practitioners are familiar, as deep shoulder abscesses.

Our own experience has upheld the theory of Kitt and Hell, that the so-called botryomyces are simply tufts of pus-producing cocci. We have not had occasion to study the form described as affecting the lungs, but every case which we have seen that could be properly included in the category of botryomycosis, diagnosis to be based on the description of the lesions as given by other investigators, we have demonstrated to be associated with and probably due to pus cocci. We have been able to produce the characteristic lesions by inoculation of a pure culture of a yellow micrococcus, originally isolated from a case of what we understand as botryomycosis.

Case XVII.—Clinic No. 1967, Oct. 12, 1899. Patient, a grey horse, weight 1000 lbs., 8 years old; used for general farm work; had suffered for some time from a small bunch at the front of the right shoulder which became very much enlarged when worked with a collar. Upon examination a small tumor was found to exist just under the skin in the bearing region of the collar at the point of the shoulder and above the mastoido-humeralis muscle. This tumor was excised and found to contain but a scant amount of pus, from which tubes of bouillon and agar were inoculated. These cultures were pure of a yellow micrococcus. This organism proved to be pathogenic to rabbits, and pure cultures inoculated into two different horses produced extensive abscess formation at the points of inoculation, viz., point of the shoulder, withers and gluteal region.

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* *Zeitschrift für Veterinail,* B I and II.

† *Friedberger & Fröhner* (Hayes' Translation.)

Case XVIII.—Clinic No. 2140, Dec. 4, 1899. Patient, a brown gelding, weight 1000 lbs., 8 years old; used for general farm work. About May 1st some swelling was noticed at the point of the left shoulder. The horse has worked regularly ever since. When presented at the clinic there was a swelling about the size of a goose egg at the point of the shoulder. There was also fluctuation beneath the mastoido-humeralis muscle. Incision was made at this point and a pus cavity situated deeply between the muscles evacuated and about a large thimbleful of a rich yellow pus obtained, from which tubes of bouillon were inoculated. These were pure cultures of a yellow micrococcus.

Case XIX.—Clinic No. 2185, Jan. 4, 1900. Patient, a grey mare, weight 1000 lbs., 7 years old; has been worked in team at farm work and hauling. Two weeks before examined in clinic marked swelling and tenderness under the collar at the point of the shoulder was noticed, but the animal was continued in work. When seen at the clinic there was considerable swelling at the point of the right shoulder, hard and exceedingly tender. It was freely incised, and after cutting through about two inches of muscles two separate cavities were evacuated of a small amount of pus, from which tubes of bouillon and agar were inoculated. These developed and gave pure cultures of a yellow micrococcus.

Case XX.—Clinic No. 2204, Jan. 13, 1900. Patient, a brown horse, weight 1050 lbs., 8 years old, and used for general farm work. Has been hauling logs all winter and about two weeks previous a swelling the size of two fists was noticed at the point of the right shoulder and has been increasing ever since. Animal was laid up and kept on straw after this swelling appeared. When first seen in the clinic there was an enlargement on the right shoulder the size of a four-quart measure in front of the scapulo-humeral articulation. Swelling extends up the neck ten inches from the point of the shoulder. Is hard and tender. Incised for about four inches. Incision carried through the muscle till the pus cavity was reached and about half a pint of pus obtained, from which tubes of bouillon and agar were inoculated. These developed into pure cultures of a yellow micrococcus.

Case XXI.—Clinic No. 2519, May 5, 1900. Patient, a brown mare, weight 1050 lbs., 10 years old ; used for driving and general farm work. Three weeks prior to the time the case was first seen in the clinic, tenderness of the right shoulder began to cause trouble. This gradually increased until at the present time there is a bare area about the size of a dollar and a prominent swelling some three by six inches at the point of the shoulder. Incised freely, avoiding the bare spot and a considerable amount of coagulated lymph and purulent material removed, from which tubes of bouillon and agar were inoculated. These developed into pure cultures of a yellow micrococcus.

INFECTED WOUNDS.

In open infected wounds the infecting organisms may already be present upon or in the deeper layers of the skin. The same may be true of infected operative wounds, or we may have the organisms introduced with the hands or instruments of the operator. The four open wounds examined were inflicted by kicks from other animals and had suppurated when first seen. Of the four operative wounds examined three were expected on account of aseptic methods used to heal by first intention and the fourth by granulation.

Case XXII.—Clinic No. 2190, Jan. 5, 1900. Patient was a bay mare, weight 1000 lbs., 9 years old. Had been running at pasture with her mate and was found with a very tender swelling at the angle of the lower-maxilla. The swelling became very extensive until incision, Nov. 1st, when it broke, discharging considerable foul pus. When examined in the clinic there were two fistulæ found discharging ; one penetrating the external plate of the infra-maxilla and permitting the passage of a probe which can be passed both upward and downward for three or four inches. Tubes of bouillon and agar were inoculated from the pus discharging. From these cultures a streptococcus and a white micrococcus were isolated.

Case XXIII.—Clinic No. 2317, March 12, 1900. Patient was a bay horse, weight 1100 lbs., 12 years old, and used for farm work. Was discovered in the morning with a lacerated wound in the posterior part of the thigh, but the owner had no idea how it happened. After treating it himself for a week he presented it at the clinic. There existed a ragged wound some four inches in extent and implicating the semi-membranosis and semi-tendinosis muscles; contained a large amount of necrotic tissue. Tubes of bouillon and agar were inoculated from the discharge. Isolated a streptococcus and white micrococcus from these cultures.

Case XXIV.—Clinic No. 2343, March 22, 1900. Patient was a bay horse, weight 1100 lbs., 11 years old; used for farm work. This animal and his mate occupy stalls adjacent and they got to kicking in the night. When discovered in the morning this one had a wound on the right side of the ischium which cut loose a large flap of skin. The long vastus muscle was also lacerated but not very deeply. Also a wound on the right side of the hock. Tubes of bouillon and agar were inoculated from the wound, which was suppurating and from these cultures a streptococcus and a white micrococcus were isolated.

Case XXV.—Clinic No. 2344, March 22, 1900. Patient was a bay horse, weight 1100 lbs., 12 years old, and used for farm work. Is mate to clinic case No. 2343. As a result of the kicking, this horse had a cut on the side of the tail about two and one-half by two inches and quite deep, also a cut four inches long passing through the skin, aponeurosis and into the long vastus. Also several scratches on the skin and a wound on the head of the tibia in front, the skin being broken and some indications of a cracked tibia. Tubes of bouillon and agar were inoculated from the suppurating wounds. From these a streptococcus and a white micrococcus were isolated.

Case XXVI.—Clinic No. 2021, October 27, 1900. Patient was a bay pony, weight 800 lbs., 6 years old; used for driving and saddle purposes. Brought to the clinic suffering from double navicular disease, for neurectomy. The operation was performed under aseptic precautions and wound gelatin applied instead of bandages. The wound suppurated and tubes of bouillon and agar were inoculated from the pus. A streptococcus and a white micrococcus were isolated from the cultures.

Case XXVII.—Clinic No. 2145, December 5, 1899. Patient, a brown pacing horse, weight 1000 lbs., 10 years old. Has considerable speed and has been used for light driving as well as some track work. Presented at the clinic, to be operated upon, suffering from double navicular disease. Low neurectomy was performed, the horse being confined on the table and the pastern having been bandaged in sublimate solution for 12 hours previous to the operation which was conducted under strict aseptic precautions. The wound was sutured and bandaged with packs of sublimate. There was not much evidence of suppuration following the operation, but three days afterward tubes of bouillon and agar were inoculated from one of the wounds which did not heal as readily as the others. These cultures were pure of a white micrococcus.

Case XXVIII.— Clinic No. (Subject.) Jan. 1, 1900. Patient was an old bay horse obtained for dissection. The right prescapular nerve was sectioned for experimental purposes, which necessitated an incision about three inches in length. Although antiseptic precautions were taken the wound suppurated. The region of the wound was swollen and tender and upon removing the sutures there was quite a little pus discharged, from which tubes of bouillon and agar were inoculated. From these cultures were isolated a streptococcus and a white micrococcus.

Case XXIX.—Clinic No. 2422, Patient, a black horse, weight 1250 lbs., was operated upon for roaring and tracheotomy performed, and a tube left in to facilitate breathing while the operative wound in the larynx was healing. The wound in the trachea suppurated considerably and tubes of bouillon and agar were inoculated from the discharge. From these were isolated a streptococcus and a white micrococcus.

Since the destruction of the bacteria over the field of operation as well as on the hands and instruments of the operator is of such fundamental importance in surgical technique, it is essential that we know something of the bacteria commonly or occasionally found on or in the healthy skin. As the skin is so exposed to contamination from the air and external sources generally, we might expect almost any species of organism to have their habitat there, and such is found to be the case by those who have worked on this subject. In 1891 Dr. Wm. H. Welch*, of Johns Hopkins University, called attention to a species of bacteria, which is found with such regularity in cultures from the skin of man, that it may be properly regarded as a regular inhabitant of the normal skin. To this organism Welch gave the name of *staphylococcus Epidermidis albus.* One of its most important characteristics is that it is almost constantly present in the deeper layers of epidermis along the hair shafts. Hence we can understand why absolute disinfection of the skin is impossible, although for all practical purposes it may be accomplished. To ascertain something of the existing condition in the horse's skin, the following procedure was carried out:

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* Dennis' System of Surgery, Vol. I.

Subject was an aged sorrel horse. An area at the point of the shoulder was shaved, washed and then disinfected thoroughly with sublimate solution, and two sutures (*a* and *b*) laid, leaving about one-half inch imbedded in the skin. The needles and suture material were sterilized by boiling, and throughout the whole operation the greatest precautions were taken to maintain strict asepsis. To complete these measures the sutures and parts included by them were coated with collodion to prevent infection along the track of the sutures from the outside. After remaining for 48 hours, during which time very little swelling and no evidence of suppuration, nor much soreness in the part were noticed, the sutures were removed, and the parts having been buried in the skin were dropped in tubes of bouillon. The suture was not much altered from its condition when put in; was saturated to some extent with serum, but no sign of pus formation. Tube (*a*) remained sterile. Plate cultures from tube (*b*) developed white, orange and bright lemon-colored colonies of micrococci.

Cultures were also made from the skin after having been thoroughly disinfected preparatory to castration. The whole inguinal region was washed with soap and water, then disinfected with sublimate solution. After making the incision through the scrotum a little strip of skin from the edge of the wound was dropped in bouillon. Of seven cases studied, a white micrococcus was isolated from each case. The only difference noted between this organism and that isolated from fistulous withers, poll-evil and open wounds generally, was that it was arranged singly and in pairs, chiefly, and not in clumps, as was often the case with the others.

TABLE OF BACTERIAL FINDINGS.

Disease.	Cases.	Organisms Isolated.
Fistulous Withers . .	1, 2, 3, 5, 7	Streptococcus and white micrococcus.
	4 and 6	Streptococcus, white micrococcus and yellow micrococcus.
Poll-Evil	8 and 9	Streptococcus and white micrococcus.
Scirrhous Cord . . .	10 and 16	Sterile.
	11	Streptococcus and white micrococcus.
	12	Streptococcus and yellow micrococcus
	13	Cultures from inside cord sterile. From suppurating wound after removing cord, streptococcus and white micrococcus.
	14	Discharge before operation — white micrococcus. Sterile from inside cord. Iodine had been injected prior to operation. Three days after operation in suppurating wound a streptococcus and white micrococcus.
	15	Yellow micrococcus.
Deep shoulder abscesses	17, 18, 19, 20, 21	Yellow micrococcus.
Infected open wounds	22, 23, 24, 25	Streptococcus and white micrococcus.
Infected operation wounds	26, 28, 29	Streptococcus and white micrococcus.
	27	White micrococcus.

SUMMARY.

I. From seven cases of fistulous withers we have isolated three varieties of organisms, a streptococcus, a yellow and a white micrococcus. In two of the seven cases all three of these organisms were found and in the remaining five a streptococcus and white micrococcus only. It is important to note that the streptococcus has been present and in predominating numbers in all of the cases. Five of the seven cases of fistulous withers had not discharged when presented at the college clinic, nor was there any external opening, except in the first case, where there were two distinct abscesses, one discharging and one not. Of these five cases three contained no living organisms, as media inoculated from them remained sterile. Hence the organisms recorded as having been associated with these lesions were only found after operation.

II. In two cases of poll-evil we found a streptococcus and a white micrococcus in each.

III. In seven cases of scirrhous cord three varieties of organisms were isolated: a streptococcus, white and yellow micrococcus. A streptococcus and white micrococcus in one case. Streptococcus and yellow micrococcus in one case; white micrococcus only in one case, yellow micrococcus alone in one case and in three cases cultures from inside the cord remained sterile. In two cases cultures were made from the suppurating wounds after removal of the cords and a streptococcus and white micrococcus isolated in each case.

IV. In five cases of deep shoulder abscesses a yellow micrococcus was isolated from each case.

V. In infected open wounds a streptococcus and white micrococcus were isolated in each of four cases.

VI. In infected operative wounds a streptococcus and white micrococcus in three cases and a white micrococcus only in one case.

VII. We have isolated from a perfectly normal skin the same organisms that we encounter in the various wound infections.

VIII. The white micrococcus we have found associated with the other organisms in these infections, we have found constantly present in the horse's skin even after attempted disinfection.

In drawing our conclusions, we must bear in mind the danger of attaching too much importance to the apparent relation existing between the lesions and the species of bacteria associated with them. However, we have found certain organisms appearing with such regularity in certain of the more common infections, that we feel justified in suspecting some causal relation between the organism and the disease.

But although the above facts do not furnish conclusive evidence concerning the causative factors operating in the various wound infections, they must be of some significance in throwing their weight of evidence on the side of some previous investigations and possibly prove an incentive to further work on this subject.

TRICHINA.

A Thesis Presented to the Faculty of The McKillip Veterinary College by B. O. Minge.

The worm *trichina* was discovered about 1828. It has been thoroughly investigated and studied since that date. Trichina is an animal parasite that is found in all animals. It is a small worm, which when in the larval state is parasitic, both in the muscles and in the walls of the intestines of man and the pig. It produces a disease known as trichinosis, or trichiniasis, which is nearly always fatal in man and in the pig. There is only the well-known species *trichina spiralis*. This you might say constitutes the family of the *trichinidæ*. When in the adult state the trichinæ are found in the intestines alone; furthermore, they are not visible to the naked eye.

Commencing at the middle of its body it gradually tapers to a point. The skin of the parasite is very smooth and even. The mouth is terminal, small, and has no projection. It is provided with a digestive tube, which comprises (1) a buccal intestine, (2) a middle intestine, and (3) a terminal intestine. The male trichina is distinguished from the female by having at its posterior end two digiform appendages on each side of the cloaca. The male trichina is from 1.4 nmr. to 1.6 nmr. long, 40 u. wide. At the time of sexual intercourse the cloaca is everted and acts as a copulatory organ. The male reproduces by the testicular tube, which doubles back upon itself and ends in a canal. This canal opens into the cloaca at the same time the intestine does. The female trichina is 3 nmr. long, 60 w. wide. It has only one ovary, which is composed of a tube that begins as a cæcum near the anus and runs up to the anterior fifth of the body, opening at the vulva. The cæcal portion serves as an ovary, then a constriction, an oviduct, a wide dilatation, a uterus, a vagina, and finally the vulva. The young ova develops in the uterus, and is said to be mature when 20 u. in diameter. After the ova is hatched the embryo finds its way into the vagina, from the vagina it escapes through the vulva. Trichinæ, when in the larval state, are found in the intermuscular connective tissue, in the primary bundles of the muscles, and sometimes in the walls of the intestines. They are found in the shape of the letter S, or in a spiral, resembling the adult very closely in nearly every feature.

It was not until the year 1828 that the first trichina was positively discovered. It was in London at Guy's Hospital when the first case of trichina was discovered, Peacock being the first one to discover trichina. Since that time a great many cases have been observed. In 1832 it was found by Hilton, he being a demonstrator of anatomy in Guy's Hospital, London. He found them in the body of a very aged man, and existing in the form of a cyst. At first the question was undecided whether or not it was the trichina cyst, but later on, after thorough examination, the cysts were found to be the trichina cysts. In the latter part of 1835, there were pieces of muscles examined by Wormald and Paget at the St. Bartholomew's Hospital. White spots were found in the muscles, thus deriving the name of nematodes, which, they said, were coiled back upon themselves. Owen studied upon this field of muscle and finally gave it the name trichina spiralis. There elapsed a period of twenty-five years before the study of trichina was again renewed. There was an epidemic of trichinosis in Germany in 1859; then several experiments were carried on by great scientific men. For instance, Virchow gave a dog some of the human muscles which were invaded with trichina. In three and a half days he found in the small intestines worms which resembled the trichina, but were larger and nearly egg-shaped. The same experiment was repeated a few months later by Leuckart, though his experiment was by no means what would be termed a successful one. He was entirely wrong in mistaking something else for trichinæ. Leuckart's experiments were made upon the pig. But not being careful in the selection of infested food, with which he made experiments, he failed. Following Leuckart's experiment Professor Zenker made an autopsy of a young woman, who was thought to have died with typhoid fever. In the muscles and intestines of the woman were found great numbers of trichina, in the free state, larval state, and in the encysted state. At first it was undecided whether the worm found was trichina or not, but after a number of experiments it was found to be trichina. It was discovered that the young woman had eaten flesh of pork that was infested with trichina. A piece of the same pork that was eaten by the young woman was given to several mammals along with their food, and in each case the mammals proved to have trichinosis. There were a great many scientific men who examined the muscles of this young woman, and all found that she had eaten infested flesh.

Trichinæ in pigs in America were not discovered until 1847. Experiments were made with the pig and they proved that if the pig be fed with infested flesh it will itself become infested. Very little was ever known of trichina up to the time of the studies and researches of Zenker in 1860. Since that time there has been great progress made in the study of trichinæ. From this, great improvements were made in the sanitary measures of dealing with trichina. Virchow, Leuckart, Bohes, Welpech, Colin, and various others should be named in the list of those who searched for trichina.

Speaking of animals that are susceptible to trichina, we can frame our answer in a nutshell, by stating that all animals are susceptible to trichina, though some have it in a much severer form than others, because some animals are not as susceptible as other animals. Man, rat and pig are the animals that are the most easily susceptible to trichina. All are susceptible in the following order: Man, pig, wild boar, rat, mouse, Norway rat, guinea pig, rabbit, hippopotamus, calf, lamb, horse, dog, fox, cat, raccoon, bear, mole, hedgehog, etc. Birds are also very susceptible to trichina. As has been previously stated the adult trichina is found principally in the small intestines of mammals and birds. To begin with, all mammals and birds which are found to be infested with trichina, must have first eaten the infested flesh. Trichinæ are found in the large and small intestines, but they are found more frequently in the small intestines. Those mammals in which trichinæ are most commonly found are, man, pig, etc., and in the intestines of birds. The bird is not a favorable subject for the development of trichinæ in the encysted state, because the cyst may pass through the digestive canal, and never undergo any change. The larva which are deposited by the worm is never developed in the digestive canal, but more usually in the intestines. When one of the mammals eat a piece of infested flesh, the muscular trichinæ are encysted, the gastric juice dissolves the cyst, and the worms are set free. The fourth day after the worms have been set free, larvæ will have undergone a systematic change into the adult forms.

In testing for the adult a microscope having a magnifying power of 75 to 150 diameters is used; the intestines being examined under this microscope. It is not until the seventh or eighth day that the intestinal trichinosis is noticed. The females lives are of a longer duration than the males. It has been proven that one individual may produce from 10,000 to 15,000 embryos. The embryos that are deposited in the intestines are not developed until they have worked their way into the striped muscles and connective tissue of the body. The trichina that is found in the lymphatic glands is believed to have been brought there by the lymphatic vessels. Nevertheless, there are several different ways by which the trichinæ may be distributed through the body. There are parasitic nematodes of certain vertebrates which have been very often mistaken for trichinæ. The larval trichina has been found by experts to exist in the fat as well as in the muscles of animals. When the sixth day has been reached the larval trichinæ will be found curved in a loose loop, in the shape of the figure 3; or in a spiral. They remain in this form until they pass in the encysted stage. Trichinæ pass through the soft myolemma and thus change into a cellular sheath.

The cyst is at first very soft and thin, but gradually thickens, thus becoming transparent and homogeneous, forming two poles. By the assistance of these poles the cyst is separated from the surrounding tissues. There are various ways of finding the cyst while under different conditions. Generally the cyst has the appearance of a lemon, although it is sometimes found in different forms, the large axis being parallel with the muscular fibres. Length 30 to 50 mnr, breadth 20 to 40 mnr. The trichina in the definitively constituted cyst is in a dormant condition. Corpuscles are added, thus changing the pigment granules, from a yellow to a brown. The tissue of the cyst may undergo fatty or calcareous degeneration. Fatty degeneration is defined by the forming of small fatty granules in the interior of the cyst cells. When the fat granules have been set free and invaded the cyst, the calcareous degeneration begins. No traces of nutrition in the cyst have been observed, but it can be seen that carbonate and phosphate of lime are formed in layers in the interior of the cyst, thus rendering the cyst opaque. This calcification is not frequently formed, because it takes about seven months after infestation, and the animal is usually killed before that time. Trichinæ more than 13 years old have been found in man—even as old as 20 years. These trichinæ were said to have been living, and would have answered for experimental purposes. It has not been proven that any new infestation would or did take place during observation. Occasionally in the infested muscles there will be found fatty pigmentary or calcareous degenerations.

A cyst leads to a fat deposit which first appears at one pole and takes on a new formation. Trichinæ when arrested in this state appear as fatty masses containing very little protoplasm, and can only be located by a fatty cluster. In the fatty clusters is found the worm in the embryonic state, which very seldom lives. The trichinæ are also found at the long insertions and near the extremities of the muscles. The muscles in which trichinæ are found are classed according to the frequency of infestations; the diaphragm, especially its pillars; the muscles of the shoulders; the psoas muscles, and those of the cæcal region; neck, tongue, cheeks, eye, and abdomen, flexors of the thigh, neck, intercostals, back, and the heart.

Man is infested with trichina by eating pork which is infested, thereby causing trichinosis in man. The pig is infested by eating trichinosed animals, such as the rat, mouse, etc. The bodies of these small animals are very susceptible to trichinosis. When killed or found dead they are thrown into the manure pile, and the pigs feeding on the manure necessarily feed upon the bodies of the dead rats, etc. The rats are said to eat the droppings from the infested pigs and man, thereby becoming themselves infested with the worm. One of the great problems to-day is to decide which is the original host of trichina, the rat or the pig. It has been found in the black rat and the pig all over the world. It is believed to have been brought into this country by the rats getting into the ships, thus crossing the ocean, in that way or manner getting into the United States.

There are more trichinæ found in the pig than in any other animal, and consequently the symptoms will apply more to the pig than any other particular animal. Some animals are very often passed over when they have a small infestation, being noticed only when a number of trichinæ are infested. The first symptoms are those related to the intestinal trichinosis: Depression of the head, thirstiness, fever, dullness, grinding of the teeth, more or less inappetence for food, and a glassy appearance of the eye. The abdomen is retracted and very painful upon pressure, arching of the back, and lastly a very severe case of diarrhœa, which lasts the pig some time. These are only the minor symptoms, which last for a month or more. These are similar to the symptoms of some other well-known diseases, as enteritis, rheumatism, etc. Muscular trichinosis appears from the 10th to the 15th day; the symptoms are: The appetite begins to return, the movements of the hind quarters are very stiff, mastication is difficult, the voice is husky, the muscular masses are painful, the pig will lie extended on its side, alvine ejections are passed involuntarily. In the last stages, œdema is found in different parts of the body, and is the cause of death. The symptoms will only be found when there is an extraordinary number of trichinæ ingested. When there is a small number ingested it is not dangerous, and the pig may recover, but remains lazy and sluggish. Also the pig will fatten. The diagnosis of a case of trichina is only aided by the use of Drechunes' histological punch, or Middledropf's trocar. By either of the above-named instruments a person is enabled to draw a portion of the muscles from the hind quarters of the living pig. With this portion of muscle an examination can be made for trichinæ. There is no very great danger in this operation. To make a thorough diagnosis of a case it requires the closest attention. There are cases of trichina that are never noticed, and the pig fattens all the time. It is principally observed when man eats the infested pork and develops a case of trichinosis. It is very important that some means should be discovered by which it could be cured, thus destroying the muscular parasites. It is, though, relieved to a certain extent by prophylactic measures. The only treatment for trichinosis is preventive treatment. Be very careful that the pig does not receive any raw slops or bodies of rats. The extent of trichinosis in the United States is caused by the food the pigs receive, that is, the waste matter of all kinds, etc., which are very favorable for the development of trichinæ. The increase of trichina is also due to their remarkable vitality; thus it is very important to know if the trichinæ are dead or alive. This may be ascertained either: (1) By heating the trichinæ, which are placed on a platinum plate and heated to a temperature of 35 degrees to 40 degrees C., or (2) By giving infested flesh to an animal that it will develop in two or three days. In the first case, if the trichinæ are living they will be seen moving. In the second, the trichinæ will develop in the intestines; the male and female will be formed;

that is, if the flesh contains living nematodes. If the trichinæ are dead they will be motionless, and the cyst will be dissolved. It is best to experiment on some small animal, as the bird. In the bird you have a small amount of gastric juice; this makes it somewhat disadvantageous. The sparrow is a very nice bird to experiment with; feed it on infested meat; then after 10 hours kill it, and make a thorough examination of the small intestines. If the trichinæ are dead or alive they will follow the second test, as previously spoken of. By the use of methylanlin violet, picrocasminate of ammonia, aniline blue, as stains, the living not staining in any way, while the dead become tinted. A great many experiments have been made by prominent men upon the subject of the amount of heat it would take to kill the trichinæ in a piece of meat. It was found to be about 55 degrees C. In boiling meats it should always take from one and one-half hours to three hours to kill the trichinæ in a piece of meat. The time required varies with the size of meat to be cooked. Trichinæ are killed by cold as well as by heat; the temperature for cold is about 14 degrees or 15 degrees C. It will be less when the meat has been previously treated with salt. In itself salt applied often enough and long enough will kill trichinæ in meat. After the animal has been killed it is always marked with more or less enteritis and peritonitis. To find the embryonic trichina it is best to make a microscopical examination. In muscular trichinosis the lesions consist of cysts large enough to be seen with the naked eye, and also the calcified cyst. If the affection has become chronic it will be impossible to see the calcified cysts in lard, therefore it is very necessary to make a microscopical examination. Cut a small piece of meat parallel with the direction of the fibres; first steep it with water and place on a slide, cover with a cover glass and put under the microscope. The preparation can be examined in a 75 per cent. solution of common salt, 001-5 per cent. solution of acetic acid. Very often calcareous tubercules are mistaken for calcified trichina because they are very much alike.

Meat is inspected for the sake of getting fine meat, that is, meat free from trichinæ and various impurities.

Take the pork of our own country or any other country. When we eat it we have no idea what we are eating. There are two phases of trichinosis: (1) Intestinal; (2) Muscular. The intestinal phase is shown by fever, thirst, prostration, want of appetite, spasms of the throat, very heavy perspirations, fullness at the stomach, and sensations of malaise; these are the most important symptoms of this phase. The muscular phase is shown by swelling of the limbs, puffiness of the face, accompanied by pruritis and formication; the muscles become very painful, contraction in the flexors, deafness, and finally broncho-pneumonia, which is sure death. Trichinosis is usually epidemic.

In 1879 there were about eleven million hogs killed, Chicago furnishing half this number. Half this number were exported to foreign countries. On account of poor packing the trichinæ were not killed. From this some of the foreign countries passed a law prohibiting American pork being brought into the country. American pork has given rise to a great many questions, especially the demand for public health. This demand has brought about the microscopical examination of the dead animal at the port of export and import. There are three ways of judging: (1) Judging by lot. (2) Judging the lot. (3) Judging by piece. Judging by lot is to take pieces from here and there and examining them; if infested, reject the entire lot. In judging the lot every box or barrel is examined; if one piece is infested, reject the lot. This is recommended to be the best method in order to keep down fraud. In judging every piece, all the infested pieces are thrown out and the good ones kept.

A large staff is required in order to do the work. It is impossible to make every examination correct, because sometimes the trichinæ are not fully developed. It is then very hard to distinguish it. Sometimes it slips the inspectors, and then the blame is laid on American pork. For instance, take the case of the boy on the Cornwall. His death was said to be due to eating American pork infested with trichinæ, but after his death it was found to be something different and belonging to a different family.

When the idea of thorough cooking is impressed on the people and the introduction of what is known as "fully cured" meat, there will not be any more danger. When a piece of meat is condemned it should be treated with a solution of carbolic acid, petroleum, etc., for the purpose of destroying it, so it cannot be used in any way.

ACUTE INDIGESTION.

By W. B. Switzer, V. S., Oswego, N. Y.

Read before the New York State Veterinary Medical Society, September, 1900.

Mr. President and Fellow Practitioners :

Some time ago I received a communication from our worthy Secretary, asking me to prepare a paper for this occasion. My first thought was to reply at once, and respectfully decline, but having a deep interest in the prosperity of this organization, upon further consideration, I felt that it was but just that I should do my part, as best I could, and therefore beg to present to you a few of my thoughts and observations upon the subject of acute indigestion.

As you are all perfectly aware, this is one of the most prevalent as well as one of the most fatal diseases with which we come in contact, and in presenting this paper before you to-day I do not hope to offer any new mode of treatment, or suggest any new thoughts or ideas to a body like this, composed of so many whose years of practice so far outnumber my own, but realizing that it is a subject of the greatest importance, not only to every member of our profession, but also to our patrons, I have hoped that, by bringing it before you, a discussion of the subject might be aroused which would prove beneficial, not only to myself, but also to many others present.

The symptoms and causes of this common disease are too well known to make it necessary for me to enumerate them here, therefore I beg to briefly call your attention to some facts in connection with the treatment, realizing, as I do, that this must be varied according to stage and condition of the patient.

Every practitioner is well aware, although I regret to state that some do not always act as if they were, that the only way to cure disease is to remove from the system the cause of same.

Indigestion only comes on when the digestive organs fail to do the work they are called upon to perform. This may be brought about by either of two principal causes. First, a gradual loss of vitality until the organs are unable to accomplish their mission, and from some minor cause the digestive process ceases, and we have a well-marked case of acute indigestion. Then again the same thing may occur by suddenly overtaxing these organs, as by feeding a greater amount of food than the animal is in the habit of receiving.

In the great majority of cases we discover a fermenting process with more or less gas, in which case we should first direct our attention to destroying the gases and preventing further formation of same. After which we should proceed to restore active digestion, giving careful attention to the diet for some time after the appetite is restored.

Then again we get cases where the undigested food causes spasms; then, of course, our first effort would be to relieve the spasms by the use of some of the many antispasmodics, and the use of soothing drenches, such as flaxseed gruel, slippery elm tea, etc., always giving remedies a reasonable length of time to do their work.

But I imagine I hear some one say "these mild remedies will not always answer;" this I fully realize, and we must be ever ready to meet emergencies with the more active remedies, such as aloes, eserine and pilocarpine, or berian chloride. And in extremely bad cases the use of the trocar and canula and probang.

In connection with this, perhaps it might not be out of place to give an account of a case which I was recently called upon to treat.

The patient was a carriage horse, owned by C. A. Sherridan, M.D., of Oswego. On the evening of January 28, 1900, I was called to the boarding stable, where the horse was kept, and found him suffering with a very severe attack of acute indigestion. I learned upon inquiry that the Doctor had been driving quite late, and that the horse being fed at once upon coming in, had eaten his feed but had been almost immediately taken sick. When I arrived he was regurgitating gas from the stomach to a degree that I had never seen before.

I undertook to administer a dose of aromatic spirits of ammonia in a capsule, but he could not swallow it, but when partly swallowed he would expel it with great force. After two or three unsuccessful attempts with this, I tried ether in a drench, but with the same result, the horse rapidly getting worse, and so I concluded to pass the probang, which I did, holding the mouth open with the speculum.

As soon as the probang reached the stomach the horse received instantaneous relief, as the gas rushed out through the tube in a great volume. When it ceased I cautiously withdrew the probang when, to my great surprise, a large stream of blood followed, coming through the mouth and nostrils. The horse staggered and fell, came to his feet again, reeled around the box stall, reared up on his haunches, throwing his nose over the partition in such shape that he was in a perpendicular position in the corner of the stall, blowing blood all over everything around him.

Just then his owner, the Doctor, came in, and I told him I thought the end was not far off. While we stood watching him he fell over, and giving one or two convulsive struggles, came to his feet and soon became more quiet. After waiting a few moments I succeeded in administering a dose of oil of turpentine, soon following that with a dose of snlphuric ether. He gradually improved and in three or four days had made a complete recovery.

I do not approve of the indiscriminate use of opiates and physics in the treatment of acute indigestion. We are often called to attend a case where some one has already given tr. opia 2 oz., or a large dose of physic, possibly both. I find that many are in the habit of at once giving one or both of the above mentioned remedies.

It has been my experience that this treatment fails to produce the results desired. For instance, we cannot expect to get the good results from a dose of physic, given to an animal when the stomach and bowels are distended and the fermenting process is still going on, that we would get if we first correct this condition. Not only this, but in many cases, the physic is not called for at all.

As regards the use of opiates, the administration of same at the early stage of a disease will almost invariably dull the sensibility and thus relieve the pain for a certain length of time; but when they have ceased to exert this stupefying influence, the horse is as bad as ever, and they have only served a temporary purpose, while the doctor has been thrown into the dark, if not entirely deceived, as to the true condition of his patient through the dulling of the sensibilities of the horse, thereby placing him in a condition where he is unable to reveal his true symptoms.

After we are well satisfied of the true condition, if the pain is so great that we feel justified in giving an anodyne, I prefer either cannabis indica, or chloral hydrate, as they have no constipating effect, as so many opiates have.

And now, gentlemen, appreciating that this paper is somewhat crude and incomplete, yet I trust that a healthy discussion of the subject may be aroused from which we shall all derive much benefit.

"I have been a regular subscriber to the REVIEW for the last couple of years, and find that frequently one article is worth double the price of a year's subscription."—*E. A. Richardson, V. S., Marcus, Ia.* [This extract is printed as a sample of many from subscribers in all sections.]

ACTINOMYCOSIS.

By W. C. Hanawalt, V. S., Sheffield, Illinois.

Read before the Annual Meeting of the Illinois State Veterinary Medical Association, November 15, 1900.

In bringing this subject before you it is not my desire to advance anything new as to the disease in itself, but to give a treatment which has proved successful in a very large per cent. of cases in my practice.

As we all know, it is very hard to tell, when dissecting these actinomycotic tumors, when we have all the affected tissue removed. And, again, when we remove these enlargements with the knife it is so easy to think the work well done, and desist, leaving the fresh sore covered, as it were, with actinomyces, which find lodgment in the flesh and soon develop new abscesses. You at first might think that to leave a wound of one's own making thus infected would be poor surgery, but I will say for myself I have seen this very mishap occur in my practice after dusting the raw surface with powdered corrosive sublimate, thus leaving no doubt in my mind that the proper way to remove such tumors and abscesses is not with the knife.

My attention was first directed to caustics by a report from the Ohio Experiment Station by Dr. H. J. Detmers, State Veterinarian for Ohio, some nine or ten years ago or more, in which he recommended an admixture of arsenic, caustic potash and gum acacæ, as a mixture to remove the tumors without the scalpel, and I am glad to say that I consider his formula a good one. The only objection is the slow and lingering slough.

The treatment I advise is chromic acid. Take, say, one dram of chromic acid crystals, by measure, and two ounces of water, making an average solution. Open the abscess enough to insert the index finger, with this remove the pus and cauliflower growth, which you must break down as much as possible. Now take a small wad of absorbent cotton with your pincers, dip it into the solution, squeeze out enough so it will not drip, and introduce it into the cavity you previously made into the tumor and take a stitch or two to hold it in. This will penetrate into the tissues from a half to an inch deep, into a small or young tumor. For a large, hard, woody, old tumor, I would advise a stronger solution of the acid. In about six or seven days this will detach the healthy from cauterized portion and leave a clean, healthy, granulating wound, which will heal readily, with but little care and remedies, and leave little or no cicatrix. Some care and judgment must be used in the strength of this solution, or it may cauterize more deeply than desired in regions of the gullet, trachea and jugular vein Openings into these organs might prove troublesome or serious.

I should like, if any doctor tries this remedy, that he inform me of his success. I would also advise you to try Dr. Detmers' remedy.

REPORTS OF CASES.

"*Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science.*"

ABDOMINAL SURGERY IN THE SOLIPED IN ITS PRACTICAL APPLICATION.

By WM. H. GRIBBLE, D. V. S., Washington C. H., Ohio.

Many thanks for Drs. Merillat's articles on abdominal surgery, and will record two cases occurring in my own practice.

Case I.—A medium-sized eight-year-old mare suckling a four-months-old colt was grazing on the roadside, and a dooryard gate being open, of course the colt had to prospect while the mare took the short cut, jumping the picket fence. The pickets directly under the mare broke off, but one at the side cut an opening about seven inches long through the skin and abdominal muscles, followed immediately by a large intestinal hernia. The opening was some twelve inches posterior to the sternum and equal distance from the linea alba. A lady who saw the accident had sufficient thought to immediately take a bed sheet and with help fasten it about the mare. On my arrival we found the hernia so large and the protruding bowels so full of gas and congested from constriction of the wound, that we confess to some nervousness.

Giving the mare one ounce of chloral hydrate and securing plenty of help she was carefully thrown and securely confined; then after well washing the bowels with creolin solution and using the trocar there was not as much difficulty in returning them as we had anticipated. Muscle tissue was sewed with interrupted stitches of heavy catgut, then well sprinkled with iodoform sugar and the skin sutured with wire. The mare was assisted to her feet, an antiseptic plaster containing balsam and resin was applied over the wound, leaving a small opening, then covered with cotton and over all a well fitting body bandage, held in constant apposition with shoe elastic. Took animals under our immediate care. Colt was allowed to suckle three times a day; mare was confined to a box-stall and after the same evening of accident never missed a feed; wound was not dressed to exceed once in two days, and in sixteen days all bandages were removed, and to-day the only evidence of the accident (on the mare) is a slight longitudinal scar; while the evidence on me is an unpaid account.

Case II.—In order to get with its mother, a four-months-old colt attempted to jump a low, dull-pointed picket fence, and was found with front legs on one side of fence and hind legs on the other, with one picket up in the opening of prepuce or sheath. He was lifted off and ran to his dam, having apparently suffered no damage at all.

Next morning the *cul-de-sac* of sheath was obliterated, and in its place was a fluctuating tumor much larger than a man's head; while the colt still showed no pain nor inconvenience and still suckled. We were called. While we could not find a single mark of external injury, we found that the picket that went into the sheath had ruptured the abdominal muscles just anterior to the pubis and a little to the right, without even scratching the skin of prepuce.

The abdominal opening was four inches in length, out of which came the intestines, gravitating between abdominal muscles and loose skin, to point of sheath, forming the apparent tumor. A wagon-bed was called into duty for operating table; one end much higher than the other, and the colt carefully laid on it. We spent considerable time in our efforts to force the intestinal mass back from the point of sheath and through the abdominal opening, but failed. Having no chloroform, we now gave hydrate of chloral; securely tied the animal, and injected cocaine locally. The right hind leg was drawn well back and an incision large enough to admit the hand, was made through the skin, just over the abdominal opening and at side of penis.

Through this opening a pair of retractors held open the muscle wound and enabled us to quite easily draw the bowels back from point of sheath and pass them into the abdomen.

The wounds were carefully sutured, treated antiseptically and bandage applied. For three or four days there was loss of appetite and apparent colicy pains, but after that, except a slight soreness, shown by disinclination to walk, no symptoms of sickness were shown. The abdominal wound healed readily, with practically no pus, while the skin wound suppurated, sloughing out all the stitches, but now, three months after the accident, you could not tell the animal had ever been injured.

Case III.—Heavy bay mare, ten years old, was turned *Sunday* into a feed lot containing some cattle racks, made of 4x4 corner posts and boards. Next morning one of these racks was found broken and the mare had several places with the hair knocked off, but no actual wound. During the day a swelling developed at the lower part of right flank, gradually extending downwards and forwards. The owner was sick in bed at the time, so not much attention was given to the mare, although the hired man daily reported that the swelling was becoming larger and extending farther, but she was *feeding* well. *Friday* she ate her breakfast, but refused dinner, was constantly looking at the flank and lying down and getting up; and we were called. Found enormous swelling extending from breast to pubes, and most prominent at lower part of right flank. Examination showed swelling to be œdematous; so several punctures were made, from which serum flowed freely; but we were in doubt as to the cause of the extra enlargement at the flank, as that was œdematous as well as the rest; and external manipulation revealed nothing. On examination per rectum bowels could readily be traced out through a rent in the abdominal muscles, but no amount of traction would draw any back.

Animal was cast, securely confined, etc. An incision about eight inches long was made over the enlargement, downwards and forwards; infiltration of serum was fully two inches thick before we came upon the imprisoned bowel; a loop of small intestine not exceeding four or six inches in length and black as tar, held there by bands of fibrin. Animal was immediately shot. There was a rent through the small oblique about three inches long and through the large oblique about five inches long, through both of which passed the loop of intestines, and the X action of the fibres of these two muscles held the bowel, shut off blood supply and mortification had almost separated the piece. Interest in this case is that the animal was injured *Sunday* and undoubtedly ate well until *Friday*, while during that time there could have been no passage of faeces through the hernia and that part was gradually undergoing mortification.

TETANUS TREATED BY SERUM AND HYPOSULPHITE OF SODA.

By SIDNEY D. MYERS, V. S., Wilmington, O.

On Dec. 26, 1900, my attention was called to one of the horses used to draw the engine in our fire department. The driver said the horse had been acting strangely for about four days, and on the day previous, while responding to an alarm, the horse had acted very badly. He is naturally very nervous, but on this occasion seemed more so than before, and was very hard to control. Upon examination I found a slight stiffness about the jaws. Any excitement would cause the membrana nictitans to cover about half of the eye; tail was elevated, abdomen tucked up and constipation was present. On the near hind coronet was a calk wound, which the driver stated had been inflicted about ten days previous, and was about healed. Diagnosis: tetanus.

I at once ordered the horse out of the team, and to be kept as quiet as possible and to be tied up so he could not lie down. I telegraphed Parke, Davis & Co. for sufficient antitetanic serum for one case. The next day, at noon (Dec. 27), I received six bulbs containing 10 cc. each.

At 12.20 I injected the first bulb. At 6.20 P. M. the condition was unchanged, and I injected a second bulb. At 10.10 P. M. injected the third bulb.

Dec. 28, 8 A. M., condition unchanged, except patient did not clean up his corn very readily. I injected the fourth bulb. At 1.30 P. M. he had eaten the morning feed of corn and cleaned up the noon feed of oats. Injected the fifth bulb. At 2.40 P. M. condition unchanged, when I injected the sixth bulb (66 cc., all told).

Dec. 29, 8 A. M., condition unchanged. Prescribed saturated solution hyposulphite of soda, six fluid drams in drinking water, three times daily.

The patient remained about the same, except that I would find him a little more nervous in the mornings than at night, until Jan. 3, or about 14 days from the time he was first noticed to be sick. From Jan. 3 he continued to improve until about Jan. 16, when all the symptoms had subsided.

TORSION OF THE UTERUS.

By J. A. McCrank, D. V. S., Plattsburgh, N. Y.

I meet a few cases of torsion year after year among cattle, but none to date in a mare, and I sincerely hope I never will. I have no reason to be proud of my success in the treatment of those cases, so will continue no farther along that line.

On January 14th, 1901, I was called to see a cow whose period of gestation had expired and whose actions puzzled her owner. I found her lying on her right side chewing her quid, but every few minutes she would strain. On examination I found a "twist of the neck of the uterus," and with the greatest efforts I could use I could not get one finger into the uterus. There was a half turn. I worked very hard for a time in vain. I tried every method I could think of and I think I have read every one's treatment, but I was baffled at every turn. No doubt many readers of the Review who have been in similar places can imagine they see me in my dilemma. I prayed that the days of miracles might return immediately, if not sooner, let me out of this muddle, save the cow, and my reputation. I was desperate; the cow must die. A thought occurred to me; I had seen cows spayed. I thought I understood the methods of entering the abdominal cavity, I took my knife and made an opening into the cavity over the neck of the uterus, passed my hand and arm into the cavity. With the pubis as a fulcrum and my arm as a lever I managed to reduce the twist completely. I then helped away the fœtus, removed the placenta, washed out the uterus with tepid water and creolin, stitched the lips of the vulva, put a strap about the body in advance of the udder to prevent straining, gave soft, easily digested food, had her kept warm and quiet. The cow recovered, is smart now, gives a good flow of milk, and to all appearances will live to have another calf.

Now, I do not report this case for the purpose of lauding my skill, for I really think it is a case of a miraculous recovery, after horrid bungling; and there is an old adage which may very well be applied to my case, "A fool for luck."

Now, while you may smile at this case and the results of my foolhardiness, I see no reason why the operation can not be performed on a healthy beast at the outset *if* other devices have proved a failure.

A SWALLOWED PLACENTA CAUSE OF DEATH.

By Francis Abele, V. S., Quincy, Mass.

Cow was badly distended with tympanites. Had had same a week before. Another veterinarian had left trocar in one and one-half hours, etc. Such was the history. At times she would vomit out great masses or sloppy food. I have seen similar symptoms, but never had chance to hold post-mortem. Read up and found that it was often due to tumor in the fourth stomach. Tympanites continued more or less for a month. Cow became emaciated, legs stocked up, appetite poor, back arched or rump appeared very sloping. Was allowed post-mortem.

Fourth stomach was all right, had some sand in it. In the contents of first stomach found a mass of placenta wedged into the œsophageal canal. Now, the strange part was that the cow had calved before this owner bought her. He had owned her over a month, having bought her at cattle market. The membrane was thin, clear and transparent in many places. Much of it was thready like frayed-out linen cord. The mass was bigger than two fists and enclosed fully twice its amount of ingesta worked into it. Had the real history been known I would have performed rumenotomy, but from symptoms never suspected the true nature of the trouble.

A VERY STRANGE CASE.

By John Minchin, V. S., Goshen, N. Y.

On Feb. 7, I was called to see a very valuable horse at 5 P. M. Found patient in a very comatose state—in a profuse sweat, as if water was poured on him by the pailful; pulse hardly perceptible; extremities cold, and breathing very sensorously, with frequent regurgitations, being insensible to all surroundings; pupils much dilated, and excessive foaming at mouth. The horse was driven from home in the afternoon about five miles, well covered under shed for about one hour, when he started for home apparently all right. I was much puzzled on finding patient as described, for in all my practice I was never confronted with such a case. I concluded it was a case of poisoning, and administered some very powerful antidotes, and concluded I would have poor results. Tympanites was very bad, so I applied the trocar and canula with good results. In a short time he commenced as if trying to vomit and gurgle. Of course, I did not omit enemas, and to my great and agreeable surprise, in about four hours there seemed to be quite a change. The coldness was fast disappearing, and the patient made frequent attempts to rise, which he did at 5 o'clock A. M., after eight hours suffering. He could not stand without some support, and to-day (Monday) he seems to be all right.

I need not say the cause of this trouble to me is very strange. I told the owner if the horse died not to touch him, as I wanted to examine him and try to find out the cause.

There have been a few cases of sudden deaths in Orange County recently, but not having seen any of them cannot give symptoms.

A NEW CORN-STALK DISEASE.

By E. A. RICHARDSON, V. S., Marcus, Iowa.

January 20, 1901, was called to the farm of Geo. Pimperton, five miles southeast of Marcus, to see a cow said to be suffering from fits.

History.—Cow running on corn-stalks, housed at night. Two weeks previous, when let out in the morning, fell forward on her knees; immediately arose, when for a few steps the front feet were carried quite high and wide apart, but after walking a few steps all signs of the trouble disappeared.

On morning of the 20th at milking time was found upon her knees in the stanchion. Owner thinking she was reaching for corn urged her up, when she upended and fell upon her side. Boy upon arrival stated she would show the whites of her eyes, lay awhile, then get up and go to eating or chewing her cud, apparently as well as ever.

Upon arrival I found the cow standing, chewing her cud, but when approached there were more or less nervous symptoms, with a wild or startled appearance of the eyes, excessive lachrymation, but none of the sclerotic coat showing. The muscular twitching was quite perceptible when I attempted to take radial pulse, which was 70; temperature not taken, having broken my thermometer the day previous. Bowels quite loose; muzzle not very dry, but became quite moist later; respirations natural, though somewhat hurried. While standing watching her she suddenly fell forward on her head, which was half turned under the body; hind legs still upright, turned head when she fell over on her side, attempted to get up, when the hind-quarters would be raised, to again topple forward and so twist the head and neck as to threaten strangulation. The same was repeated three times, the inferior oblique muscle of the eye contracting and drawing it toward the inner canthus, showing a good portion of the sclerotic coat. Marked muscular twitchings; respirations quite hurried, though not regular, being interrupted by a peculiar suppressed grunt, abdominal raise, followed by that of thorax, when suppression would cause a decided bulging of the chest walls. This would be followed by natural breathing, though quickened and numbering 40 to the minute.

After recovering from an attack she would rise up upon her sternum and lie a few minutes before getting up. 25 minutes after attack (which lasted about 15 minutes), pulse 64, respirations 32.

When she would rise to her feet noticeable muscular twitching, muscles cramped, especially noticeable at stifle, causing a decided straightening of the hind legs, and would move with a short, hesitating stilty action.

When drenching at 12 A. M., 35 minutes from last attack, her head suddenly dropped, causing her to fall forward, but the attack was only mild, as hind-quarters were held down to prevent rising.

About 2 P. M. she was moved to a box-stall, but in coming out of stable, going down a decline of some two feet, she again fell forward, which I don't think would have occurred if head and neck had been supported.

Treatment.—Physic drench, as follows :

℞	Magn. sulph.,	lb i.
	Aloes Barb.,	℥ i.
	Zinzib. rad. pulv.,	℥ i.
	Ac. carb.,	ʒ i.
M. Sig.	Dissolve in hot water and drench.	
℞	Pot. brom.,	℥ viii.

Chart. viii. Sig. Two powders every two hours for two doses, followed by one every two hours.

Good recovery. Ordered kept off stalks.

Had my first call in November, treating four cases for one man, all recovered. They had a second attack when again put on stalks. I know of three other herds being attacked, but recovered without treatment, though symptoms in one were slightly different, travelling sideways with the hind-quarters similar to a dog. All cases were in mature animals, and in one case neighbors herding cattle in the same field, but only one herd was affected. All cases treated were milk cows.

They will apparently recover without treatment, only hearing of one death, which no doubt was due to strangulation, which could easily occur, as I have known cows to become cast and thrash around so as to smash manger and stall into kindling wood.

The cause, no doubt, is due to a ptomaine poisoning from the corn affecting the nervous system, but why it affects the front quarters more than the hind I cannot say.

DEPARTMENT OF SURGERY.

By L. A. and E. Merillat,

of the McKillip Veterinary College, Chicago, Ill.

SURGERY OF THE URETER.

Operations upon the ureters are of recent origin, most of them having sprung into existence during the last decade. At a meeting of the American Surgical Congress in 1894 a paper was read before the association by Dr. Christian Fenger, of Chicago, Illinois, which fully reviewed the surgical operations of this nature that were then on record; since then many experiments have been made to test the efficiency of such interference. At present we have not time to investigate the progress made in this line by foreign surgeons, who evidently would excel our efforts in the proportion to the relative efficiency of the profession in the continents respectively. In our résumé of the surgery of the ureters we shall be guided by the following outline:

(A) Indications for surgical interference.
  I. Surgical Wounds.
  II. Accidental Injuries.
  III. Neoplastic Growths.
  IV. Calculi.
(B) Surgical operations.
  I. Ureterotomy.
  II. Uretero-rectostomy.
  III. Uretero-Ureterostomy.

I. *Surgical Wounds.*—These wounds may be inflicted during operations in the region of the ureter. In nephrotomy the ureter may be accidentally injured and the wound thus inflicted may be intra- or extra-peritoneal, and longitudinal or transverse. The longitudinal intra-peritoneal incision can be sutured by Czerny or Lembert sutures, and, if necessary, it can be reinforced by taking a fold of peritoneum with the edge of the wound. Extra-peritoneal wounds are not common, but may result from extra-peritoneal nephrotomy, or in the removal of ureteral calculi. In most cases they reunite without suturing; but should suturing be indicated, a few catgut stitches should be applied. Transverse incisions are more serious than the longitudinal, and in many cases must be approximated or invaginated by the Van Hook method (*Journal of American Medical Association*, March 4, 1893), which will be mentioned in the anastomosis of ureters.

II. *Accidental Wounds.*--The ureters are occasionally injured by gunshot, or punctured by sharp or probed by pointed objects, such as forks, knives or pointed sticks. These accidents, however, are more common in hunting dogs than in other domestic animals. Gunshot wounds are usually caused by a hunter's accidental or ill-directed shots; by brutal attendants; by forcible blows, falls or kicks, causing injuries in the lumbar region. Small animals may receive injuries of this nature by being run over by light vehicles. In human subjects, injuries to the ureters are often attributed to overstretching, but in domestic animals, no cases of this nature have ever been attributed to this cause. If overstretching is a cause for rupture of ureters in quadrupeds, the accident might follow high or long jumps made by these animals.

III. *Neoformations.*—New growths in or around the ureter which would obstruct the passage of urine from the kidney to the bladder are indications for ureteral surgery; but when of a malignant type and the renal portion is involved, it is useless to attempt to effect a cure by anastomosis; when such conditions are found, it is advisable to remove the kidney instead of confining our efforts to the ureter. When new growths in the surrounding structure compress the ureters or involve the ducts to such an extent as to interfere with their function, anastomosis or implantation of ureters may be indicated (*Journal of American Medical Association*, Feb. 16, 1901), but as already mentioned, the operator should be guided by the part of the ureters involved, in selecting the course to be taken.

IV. *Calculi.*—A calculus located in the ureter is sometimes an indication for ureterotomy or ureteral anastomosis. The calculi may be lodged in any part of the duct, but are most frequently located in the pelvis of the kidney; occasionally in the anterior and vesical portion of the ureter, but seldom in the middle portion. If a calculus can be located in the renal portion of ureter without surgical means it should be removed by an extra-peritoneal operation. The most reliable method of locating calculi is by the use of the X-ray; other means are unreliable in domestic animals.

B. *Surgical Operations on the Ureter.*—In the brief consideration of this subject we shall only consider the following operations which we consider applicable to veterinary surgery:

I. Ureterotomy.
II. Implantation of ureter into rectum (uretero-rectostomy).
III. Uretero-Ureterostomy (anastomizing ureters).

I. *Ureterotomy.*—This operation consists of an incision made into the ureter; and the procedure may be executed either without entering into the peritoneal cavity, or by gaining access to the ureter through the peritoneal cavity; we shall therefore consider two methods of performing ureterotomy:

1. Extra-peritoneal ureterotomy.
2. Intra-peritoneal ureterotomy.

1. *Extra-peritoneal Ureterotomy.*—By this method of performing the operation, the ureter is reached through the abdominal parietes; a longitudinal incision is made on a line extending from the posterior costal border of the last rib to the anterior border of the ilium, near the end of the transverse processes of the lumbar vertebra. The extent and exact location of the incision depends upon the location of the obstruction. When the ureter is found and the obstruction detected a longitudinal incision is made in the duct and foreign matter removed and the wound thoroughly cleansed by irrigation. If the incision is small it is not necessary to suture it, but if it is long a few catgut sutures should be applied to keep the edges together. The Lembert sutural loosely ligated will answer. The wound is treated as all wounds requiring drainage. (*See* REVIEW, *Vol. XXIII*, *No.* 12, *Sur. Dept.*)

2. *Intra-peritoneal Ureterotomy* is performed by opening the abdominal cavity. This method is not recommended for herbivora or omnivora, but could be used in carnivorous animals without much inconvenience. The main trouble with this procedure is the inconvenience caused by the intestine; this, however, can be partly obviated by walling them off with sponges. When this is accomplished, the operation (*ureterotomy*) is completed by making a longitudinal incision in the ureter at the point selected; this incision must not be made larger than actually necessary to remove the obstruction (calculi generally). The incision is sutured by Lembert's suture, which can be reinforced by including a fold of peritoneum in a

secondary suture. The abdominal cavity must then be irrigated, sponges removed, and the cavity closed as in celiotomy.

II. *Uretero-rectostomy.*—Implantation of ureters into the rectum has been successfully performed experimentally, but its indications are not numerous, and its results are not very flattering; the operation is often followed by renal disease and uremia (*Journal of American Med. As.*, Feb. 16, 1901). The uremia being caused by the absorption of urine in the rectum. Renal disease results from the passage of bacteria to the kidney. When the bladder is not ruptured, and urethra is obstructed this interference is best replaced by making a *recto-vasical festula.* The operation (*uretero-rectostomy*) is performed by opening the abdominal cavity; the bladder if not ruptured must be emptied, and the ureters cut as near to the vesical extremity as possible, and this end implanted into the rectum by making an opening into it and suturing them so that the serous coat of the rectum will enclose the duct.

This operation is the most simple of the three above mentioned, and the recoveries from it are greater, but the indications are not numerous. Uremia and renal diseases are generally sequelæ of the operations.

III. *Uretero-ureterostomy.*—This operation is more uncertain than either ureterotomy or uretero-rectostomy, especially in very small patients. The operation has been successfully performed by some operators, but unfortunately, we have met with poor results from ureteral anastomosis, but would not discourage any surgeon if willing to resort to such surgical interference when indicated. This is an intra-peritoneal operation. The ureter to be connected with its fellow must be disconnected from the connective tissue which attaches it to the sublumbar muscles, and peritoneum; it is cut at the point selected; the vesical portion is ligated and renal portion cut obliquely is partly invaginated into an incision made into the other ureter and carefully sutured so that the lumen of the duct is not obstructed. The procedure following the anastomisis is the same as in other secondary abdominal operations.

HERNIA.

The word "hernia" refers to the protrusion of the contents of a cavity through its parieties. In veterinary surgery it has lost its general meaning and is used almost exclusively as a synonym for "abdominal hernia," because the physical constitution of the abdominal cavity and contents of domestic mammals is favorable to the formation of such abnormalities, while the other cavities seldom suffer.

Classification of abdominal herniæ :

A. *As to location :*
  1. Scrotal or oscheocele.
  2. Inguinal or bubonocele.
  3. Umbilical, exomphalos, exomphalocele.
  4. Ventral.
  5. Phrenic or diaphragmatic.
  6. Vaginal.
  7. Cruro-femoral.

B. *As to condition :*
  1. Reducible.
  2. Irreducible.
  3. Strangulated.
  4. Purulent or pyocele.
  5. Serous or hydrocele.

C. *As to contents :*
  1. Intestinal or enterocele.
  2. Omental or epiplocele.
  3. Vesical or cystocele.
  4. Gastric or gastrocele.
  5. Hepatic or hepatocele.
  6. Splenic or splenocele.
  7. Uterine or hysterocele.

D. *As to cause :*
  1. Traumatic.
  2. Congenital.

The important hernias in domestic animal surgery are :
  1. Congenital bubonocele and escheocele.
  2. Congenital exomphalos.
  3. Traumatic ventral hernia.
  4. Strangulated hernia.

Congenital Bubonocele and Escheocele.—Protruding loops of intestines or omenta into the inguinal canal and scrotum is a very common congenital abnormality of all domestic quadrupeds. They are especially frequent in the new born of all genera, but show a striking inclination to reduce spontaneously as the animal grows older. As an animal develops toward maturity there is a decided tendency to close up the natural fœtal orifices, while at the same time the suspensory apparatus of the viscus (the mesentery and omenta) become relatively shorter. Here and there, however, the tumor persists through life and may even grow, through the influence of gravity or injury, to immense proportions. In mature working animals they may accidentally become strangulated, purulent or serous, and their natural tendency is to become more irreducible by partial constriction of the orifice.

Their seriousness must never be underestimated. In an inspection for soundness they warrant prompt condemnation, even in the youngest animal, as they jeopardize the animal's life by complicating the operation of castration, if not by the chances of growing or becoming purulent or strangulated.

Diagnosis.—Inguinal hernias may exist for years and entirely escape notice. Their presence may be observed for the first time when they become strangulated and threaten the animal's life, or at the time of castration, when to the surprise of the gelder, the intestines protrude as the patient regains his feet. Epiplocele (omental hernia) is very common, and it is indeed seldom that they are observed until an hour or two after castration, when a foot or two of omentum may protrude through the scrotal incision. The careful castrator palpates the inguinal region before proceeding with his castrations, and then shapes the steps of his operation accordingly, if any suspicious tumefaction is evident. As regards the diagnosis of bubonocele, it is safe to state that all non-painful fluctuating tumefactions in the inguinal canal are hernias.

Scrotal hernias must, however, be differentiated from various other pathological conditions. Hydrocele, sarcocele and varicocele, or a combination of these are by no means easy to recognize from enterocele. If the hernia is reducible it is readily recognized from other tumefactions by the readiness with which it disappears and returns on manipulation, but when irreducible or partially so palpation is less convincing—in fact, it is confusing. The non-painful fluctuating tumors are either hernias or hydrocele. The latter presents the characteristic fluctuation of fluid, and cannot be made to disappear unless they co-exist with reducible hernia. Then the diagnosis is again difficult. Varicocele and sarcocele are recognized by their firmness, and by being irreducible. A rectal exploration with one hand simultaneously with external palpation with the other frequently serves the useful purpose. The late Prof. Williams based his diagnosis on the expansion of the tumor when the animal coughs. To take full advantage of this effort the tumor is held gently in one hand, while a second person "coughs" the animal. With each cough the tumor will expand, if it is a

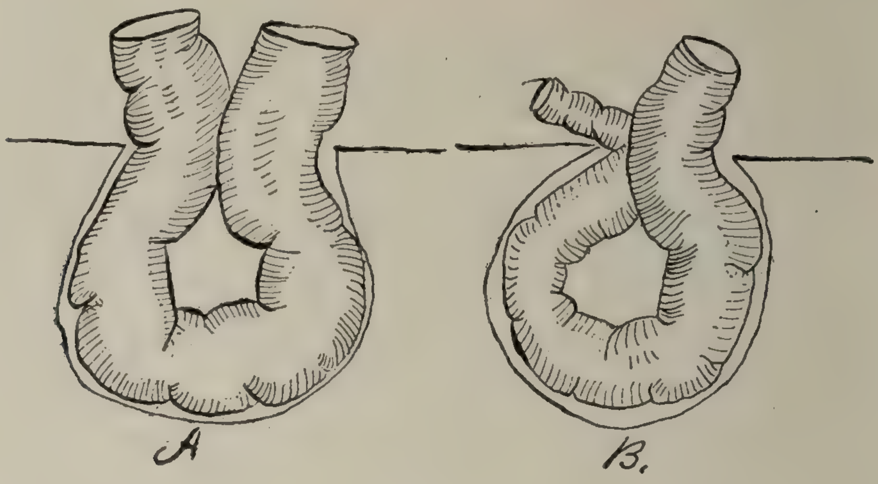


FIG. 40.

A, non strangulated hernia ; B, strangulated hernia.

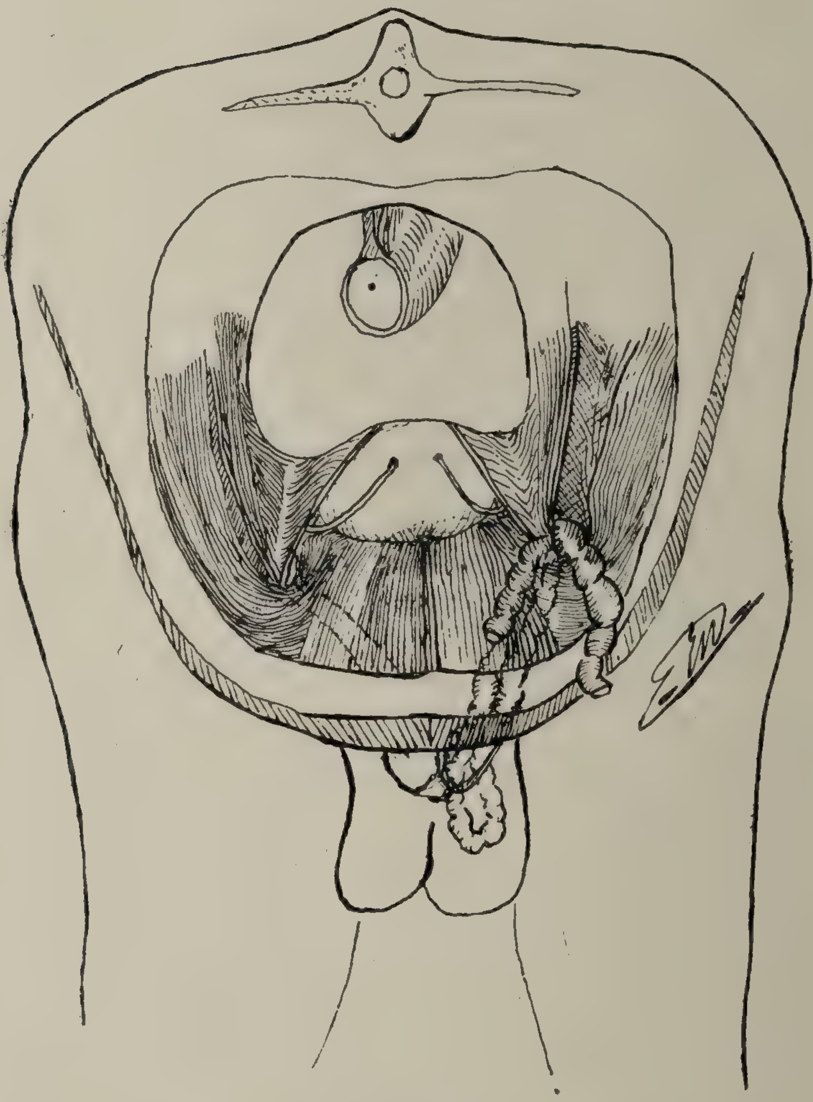


FIG. 41.

POST-MORTEM APPEARANCE OF A YOUNG STALLION THAT DIED FROM INGUINAL HERNIA (*Diagramatical*).

hernia, while only as light upward movement is observed if the tumefaction is confined to the testicle. The judicious application of this method, together with the rectal exploration, offers the only possibilities in the diagnosis of obscure scrotal tumors.

Painful tumefactions of the scrotum demand even more careful scrutiny. Until their true character is revealed they must be regarded with the greatest and gravest suspicion. A suspected orchitis or funiculitis may prove subsequently to be the incipient stage of a strangulation. The pyrexia, celialgia, local hyperesthesia and anorexia observed in strangulated hernia are seen also in orchitis and therefore do not serve the purpose of differentiation in the incipient stage, and as the life of the patient will depend upon an early diagnosis, procrastination is a dangerous element. Even when œdema and pain do not prevent satisfactory external palpation, the rectal exploration will again materially assist in reaching a logical conclusion. Again, the colicky pain of hernia must be recognized from the manifestation of distress produced by a painful orchitis.

If the above constitute the best methods of diagnosing scrotal hernia at our command, we are still without a universally satisfactory means of arriving at an accurate diagnosis. There are irreducible scrotal hernia that cannot be diagnosed until an incision is made into the scrotum. The orifice may be too small to recognize per rectum, and as external palpation will not reduce them, even the experienced may fail to differentiate readily.

Treatment.—The scrotal or inguinal hernia of working geldings that is nominal in size, might well be left alone for strategical reasons, but where they show an inclination to grow larger and larger, or are the source of frequent colics, operative treatment may then be recommended. Williams referred to an escheocele extending to the hocks, that gave the animal only nominal inconvenience. Laxative diet, regular though only moderate work, are essential precautionary measures. In domestic animals further palliative treatment is ineffectual. The truss of the human surgeon cannot be adjusted to the inguinal canal of the quadruped.

In the breeding stallion (a bad horse to recommend) the diet must be carefully attended to and all violent exercise avoided. There is no satisfactory method of reducing the hernia and at the same time preserve the testicle, and even when it is decided to sacrifice the testicle the very best the veterinary surgeon can do in 90 per cent. of the cases is to transform a scrotal hernia into an inguinal one. While this may be satisfactory to the client it certainly does not meet the highest expectations of a scrupulous surgeon. We shall state without fear of contradiction that the only curable scrotal or inguinal hernia in the adult horse is the irreducible one, in which the orifice is small and in which it was found necessary to enlarge the constriction to replace the bowel. In these the inflammation incident to the incision may occlude the orifice, but in all cases where the orifice is large (the majority) the operations described by the best surgeons are not radical by any means. Our operations for scrotal hernia are palliative, not radical. We only pinch up the sac and support the hernia, that is, we lift it higher into the canal. In the large animals we must be satisfied with these methods, because there is too much danger attending the more complicated (radical) operations. To expose the whole inguinal canal and suture the orifice gives us too great a mortality in spite of attempted asepsis. The radical operations may be carried out profitably in the colt and calf, but never in the horse and ox. In the hog and dog the palliative operations are favored by gravitation and are hence quite successful. In the young animal the simple operations (pinching process) palliate the condition, while growth and development accomplish a permanent cure, but in old subjects scrotal hernias are entirely refractory to such treatment.

It is frequently said that recent scrotal hernia can be permanently reduced by manipulation. In contradiction to this statement we will first doubt the very existence of a *recent scrotal hernia.* Recent scrotal hernias are no more nor no less than old inguinal hernias that have recently descended into the scrotum, and they never can be permanently reduced and retained except by operation, and then the best we can do is to support them higher in the canal or else jeopardize the patient's life with a radical operation. We are probably not justified in adopting the radical herniotomy of the human surgeon, because of the relative danger of sepsis, the weight of the viscus on our surgical wound and the impossibility to induce absolute quiet during the healing.

Palliative Operations in the Horse.—Although a veritable nightmare to the modern surgeon, the most effectual as well as the safest operation is the traditional "*Covered Operation.*" It has the advantage of accomplishing as much as the other methods without exposing the textures to external influences. It is a safeguard against sepsis. The *modus operandi* consists simply of placing the animal in the dorsal recumbent position, reducing the hernia by gravity and manipulation, and then pinching the sac (skin and all, including the testicle in the entire horse) with a strong clamp, which is allowed to remain intact until it sloughs off. Whenever the hernia is not reducible the sac is exposed and a long, curved, probe-pointed bistoury is guided to the orifice and a forward incision made to enlarge the constricted opening. If the hernia still persists the bowel is well oiled to facilitate reduction, or even punctured with a small trocar and canula to reduce the volume. Then the whole scrotum is pinched up as in the reducible one.

Another method—*the uncovered operation*—consists of exposing the testicle without cutting the tunica vaginalis, ligating the cord with a strong cord and then removing the testicle with a scalpel. An improvement on this method consists of ligating the cord by passing a needle armed with a double suture through its centre and then tying each half separately. In either case the scrotal incision is left open. In pigs the covered operation is preferable on account of their dirty habits. The castration of a ruptured pig is rendered safe by simply removing the testicle in the usual manner, suturing the scrotal incision and then protecting the wound with an adhesive substance. If such an animal should be submitted for operative treatment subsequently (that is a pig that had been castrated), the uncovered operation must be substituted, because the hernia may at this time be irreducible from adhesions of the intestines to the sac. Incisions into the scrotum of castrated pig must be made cautiously for fear of wounding the intestinal loop. A still better course is to operate on such pigs only at the urgent request of a client or not at all. Vanlaw, a gelder of forty years' experience, operates upon ruptured boars as follows: The testicle is carefully exposed with the tunica vaginalis intact. It is pulled outward with the one hand while the other is engaged in breaking down the outer adhesions of the tunic so as to expose as much of this membrane as possible. A needle threaded with strong braided silk is then passed through a small portion of the tunic near its insertion so that it can not slip away subsequently when the testicle is removed, and to prevent the ligature from slipping off after the operation is complete. The testicle is now exposed and removed by traction, and the cord tied around the tunic tight enough to produce gradual strangulation. In this way the spermatic cord is not held by the ligature but passes into the abdomen with the intestinal loop. The same method is applied to scrotal hernia of the horse and ox.

Congenital Umbilical Hernia.—The word "exomphalos," used by veterinarians to designate hernia at the umbilicus, is a misnomer. It was originally intended to designate a protruding navel, but usage has given it a wider meaning.

Exomphalos is essentially a disease of young animals, appearing during the first six months after birth and like scrotal hernia reduces spontaneously as the patient grows old. They are probably never traumatic, but result from a persisting navel orifice, in all instances. They are not inclined to grow to any great size, nor do they frequently become strangulated, yet it is our opinion, in spite of their tendency to reduce spontaneously, that umbilical hernia should never be left to recover without extraneous impulse. We have observed in a number of instances that umbilical hernias of young animals that are not promptly reduced are prone to result in adhesions of the bowels to the wall of the sac. These adhesions may cause recurrent colics and even perforation of the viscus. The mysterious perforations of the colon or ilium observed in post-mortems are generally traceable to umbilical adhesions which rent the bowel when the animal rolls about. Our attention was first attracted to this condition two years ago while holding an autopsy on a six-year old horse that died from shock one hour following a minor operation in the recumbent position.

The history of this animal brought out the interesting facts that he had had an exomphalos as a colt and since growing to maturity had frequently suffered from mysterious colics. He entered the operating room in the best of health, withstood the pain of the operation without struggling, but upon regaining his feet showed the typical symptoms of surgical shock, *i. e.*, rigors, profuse perspiration, especially about the head and neck, labored respiration, coldness of the surface, paleness of the visible mucosæ and sinking pulse. He died one hour after the operation. The autopsy revealed a large perforation of the colon, the semi-liquid contents of which were disseminated throughout the abdominal cavity. A close inspection revealed the true character and cause of the perforation: an old adhesion of the colon to the umbilicus. It is evident that the perforation occurred as the animal was rolled over to untie the securing ropes. Similar perforations of the ilium were observed in two other autopsies on animals that died mysteriously from slight attacks of colic. Hollingsworth, in a paper read before the Illinois Veterinary Medical Association in 1898, referred to two cases of mysterious perforations of the ilium occurring in his practice. Exactly how many deaths from colic might be traced to this condition will of course only be known after further investigation.

These cases lead us to advise veterinarians to take the firm stand that all *umbilical hernias in colts and calves demand prompt surgical attention* and should not be permitted to reduce spontaneously.

Operative Treatment.—In reviewing the many different operations advised by European and American practitioners we have adopted a method used with universal success by our old friend and colleague, Dr. W. F. Derr, of Wooster, Ohio, who to our personal knowledge has had more than an average experience in this connection, in one of the richest breeding and farming districts in America. Derr's method of operating is as follows:

Equipment.—Curved scissors, a strong piece of cord, two steel skewers 3 to 5 inches long, and antiseptics to sterilize the area.

Modus Operandi.—In the standing position four marks are made in the hair, equal distance from each other, around the base of the tumor. This is done with the scissors in order to mark the exact points to insert the skewers. The marks may be made with chalk or any other handy method. It is absolutely necessary to do this in the standing position because the skin covering the tumor will change its position when the colt is cast for the other steps of the operation. To cast an animal, and then pinch up the skin that covers the tumefaction while in the recumbent is a grave error in these operations, because when the animal rises it will be found that the strangulated area has moved to one side of the umbilicus. On the other hand, if marks are made in the standing position and the operation is performed over them while the animal is cast, the part will find its place directly over the orifice when the standing position is again assumed.

When the seat of operation is thus marked the patient is secured in the dorsal recumbent position. The tumor and environs are well washed with a potent antiseptic and the skewers are inserted subcutaneously from mark to mark so as to cross each other in the centre. The hernia having been safely returned to the cavity the cord is now passed around and beneath the protruding ends of the skewers and tied tightly enough to produce strangulation. Whenever the hernial orifice is large, and especially if the abdominal walls are thin, the cord is not tied tight enough to produce complete strangulation, but a second one is applied four days later to complete the strangulation and prolong the inflammation. If the inflammatory process still seems insufficient it is augmented by subcutaneous injection of sterilized brine at different points around the base of the tumor. In fifteen to twenty days the tumor will slough off, leaving a small wound that will require no further attention. It is needless to add that the region, the skewers and cord must be surgically clean. Derr reports two cases of tetanus from this method, but these occurred before the etiology of this disease was known.

The exomphalos submitted for treatment shortly after birth may frequently be permanently reduced by compression with a body bandage. Alverson, of Bloomingtom, Illinois, reports the best of success from this simple method. Other practitioners vouch for the efficacy of actual cautery or cauterization with strong mineral acids over the tumor and its immediate surroundings. McKillip pinches the tumor in a wooden clamp and then further strangulates by tying a cord tightly around it, after the clamp is adjusted. English practitioners favor a steel clamp made to fit the curvative of the region and held in place by supporting it around the body. Möller prefers sectional (multiple) ligation.

Any of these sensible methods are worthy of consideration in view of their safety. The radical operation deserves no place in veterinary surgery, on account of the inevitable fatalities, except in the cases which prove refractory to the palliative operations; and these are indeed rare. Derr reports no failures from the method above mentioned after a trial of upward of 30 years.

(*To be continued.*)

SURGICAL ITEMS.

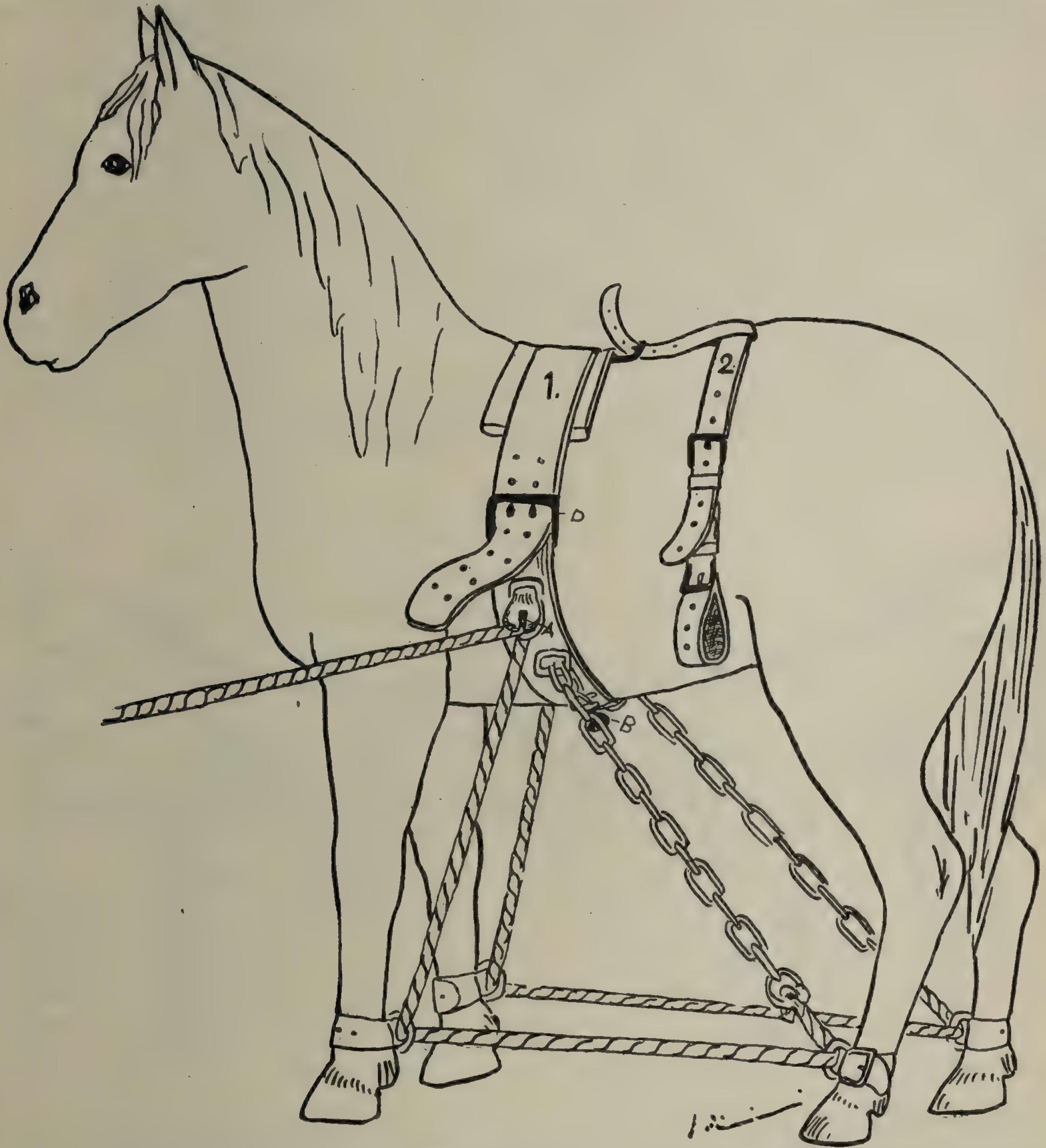
Wyman recommends neurectomy as a *dernier ressort* for the lameness of corns in the feet of horses. In our opinion this is a dangerous recommendation. The lameness of corns that proves refractory to the ordinary palliative treatment—while very rare—is too serious a condition for neurectomy of the plantars or digitals. Neurectomy is a useful operation in proportion to the surgeon's ability to select suitable cases, and while the indications in equine surgery are legion, it is our opinion that corns is not one of them.—(*L. A. M.*)

In the February number of the REVIEW, under "French

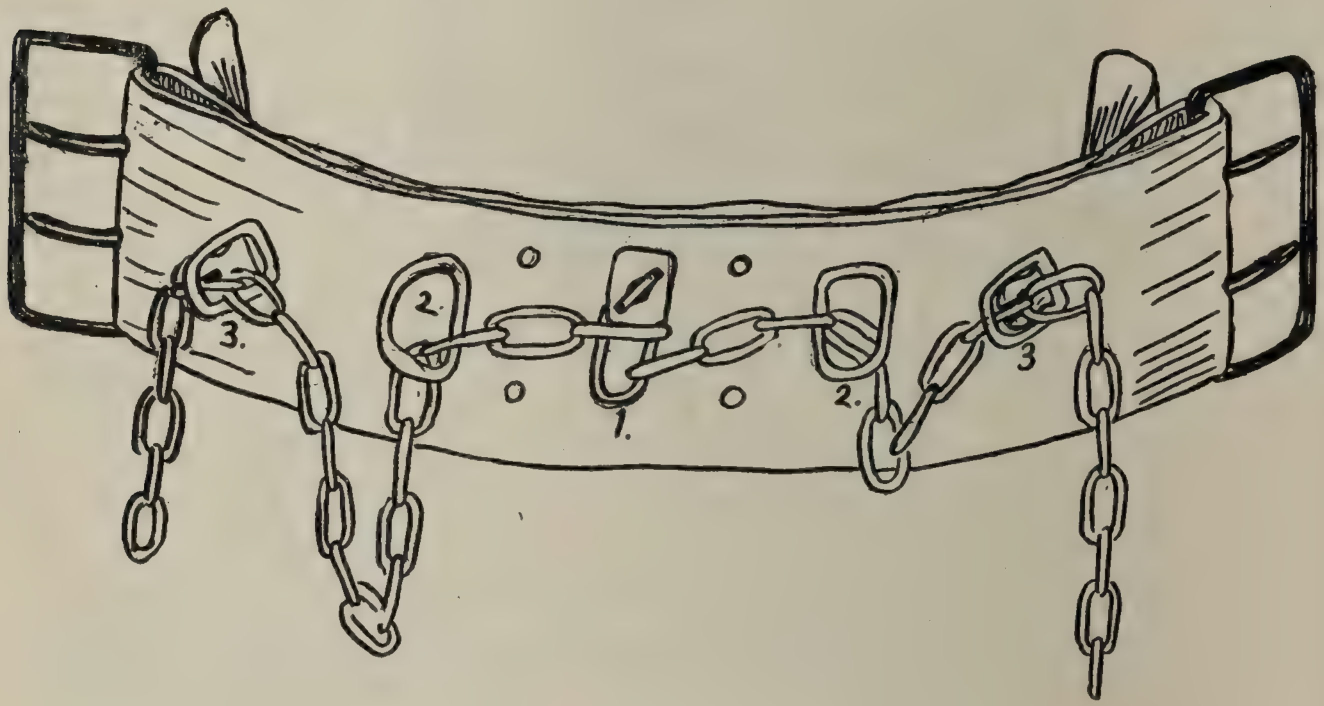
Review," we notice the report of a case that has attracted the attention of a number of English and French journals. The case was reported by Monsarrat, and consisted of an atrophy of the semimembranosis following the castration of a horse without properly securing the patient. This instance verifies the statement frequently reiterated in this department that no operation should ever be undertaken before the patient is perfectly secured. At the last meeting of the Chicago Veterinary Society, Professors Hughes and McKillip furnished the society with interesting data anent the restraint of surgical patients. Hughes, during 17 years with an operating table, reported no accidents, while McKillip, with 25 years' experience with ropes and harness, recorded but one trivial accident. Both of these surgeons are careful men, and are each favored with ample appointments and educated help, which account for their universal success in protecting their patients against injury. The same items, we believe, contribute largely to their success as surgeons. The other members of the society, who are less favored with help and appointments, report occasional accidents, among which are fracture of the vertebræ, fractures of the femur, radial paralysis, brachial paralysis, and azoturia. To attempt even the minor operations with the patient free to move in every direction is dangerous to the patient and surgeon and makes accurate surgery impossible, and to permit a patient "to make a monkey of you" is as homely as the expression.—(*E. M.*)

In order to supply our readers with as rational matter as possible we frequently solicit articles from veterinarians whom we deem specially qualified along particular lines, and as the articles thus obtained are published *verbatim* we cannot be responsible for their contents. Nevertheless, we invite, encourage, yes, admire, criticism that may enlighten our readers; that may add a mite to the storehouse of veterinary surgical knowledge; or that voices honest opinions, right or wrong. We admire the critic who fortifies his position with logical or well-meant arguments as a real scientist, or at least as a true friend to science. We have little time and less inclination, however, to give more than passing notice to the critic who simply denies the assertions of others without some substantiating propositions. Such a critic does harm in proportion to the number of readers who are weak enough to accept his deductions unchallenged. To-day it is fortunate these are few and far between. And when such a critic uses unwarranted, cutting insinuations he lacks the elements of common courtesy, but from a scientific standpoint he is probably harmless. Then, again, the critic of American veterinary literature who limits his criticisms to the rhetorical aspects of the articles appearing in our professional journals lacks a keen perception of the educational status of our rank and file. During the past decade the low matriculate and graduate requirements of most of our colleges have recruited our ranks with few college men, few high school graduates, but it has given us many who have only the rudiments of grammar school work. To these latter men we must look for a large share of our current literature, and, while their writings may not glow with fine rhetoric, they usually contain either sound sense or honest effort. The next generation of veterinarians may reasonably expect nicer literature, because the recruits may then emanate from the high schools and universities instead of from the "little red school-house," as they do to-day. Our literature to-day suffers much from the fact that those who write nicely have little technical qualification, while those who are well qualified by experience cannot, or have no time to write. We have in mind a recent letter to the REVIEW, written by Mr. Butler, for the ostensible purpose of stimulating a lively interest in the clinics of the American Veterinary Medical Association, in which he ridicules a writer in this department who dared to criticise the conditions under which a certain operation was performed at the Omaha clinic in 1898. Whether this clinic merited the drastic criticism it received has no bearing upon the case so far as we are concerned. It may have been an ideal operation, conditions and all. The point we wish to make is that the writer deserved better treatment from Mr. Butler. To openly ridicule a writer's effort to describe the technique of an operation seems to us a mighty humble occupation for the president of the A. V. M. A. Those of us who are not specially blessed with a high education frequently find it difficult to vividly portray the minute details of medical and surgical technique, without overstepping the bounds of good English. In order to "bring out" our points many of us are prone to diverge from the sphere of classical English and use "convenient" words and expressions instead. Even Mr. Butler finds it convenient to say, "Asepsis is not the 'whole thing' in surgery," etc. Although our literature is evidence of our merit as a whole, and, although we should make every effort to improve our rhetoric, there is reason at this stage of veterinary evolution to be charitable to our writers. —(*L. A. M. and E. M.*)

The Cowie Casting Harness.—At the Ithaca meeting of the New York State Veterinary Medical Society, Dr. Charles Cowie, of Ogdensburg, N. Y., demonstrated the casting of horses with a harness which he had employed in his practice for many years. Those present were greatly impressed with the simplicity and safety of the device, and inquiries were directed at the Doctor from all sides as to how and where duplicate sets could be obtained, to all of which he responded that he had never seen a similar set in this country, he had brought the harness which he now used with him when he came to America. He spread them out upon the lawn and gave his consent that all who cared to do so could take measurements and have them made. As there were many special buckles and other attachments requiring



considerable trouble to obtain, and necessitating much supervision in manufacturing, many desisted. Dr. A. H. Ide, of Utica, N. Y., was determined, however, to have a duplicate of them, and began measuring and drawing diagrams. The writer taking advantage of the situation, importuned the Doctor to have two sets made and send one to him, to which he kindly consented; and others at once made similar requests, until the Doctor had agreed to furnish about a dozen. During the process of manufacturing the first set, he saw many opportunities for improvements in the way of a self-locking device and other modern methods, and when he finally had it ready to ship the principle was about the only resemblance between it and the original one. The REVIEW commented upon the harness in its October issue, and it has received several letters asking a description of it; particularly from readers in the West, and as an answer to their inquiries mainly, we have asked Dr. Ide to furnish us with a drawing of the harness in position, together with a description in detail of the apparatus, and herewith we present the same.



The first drawing shows the "Cowie Casting Harness" improved. The automatic lock device as shown by A in above drawing, allows the hobble-chain to pass only one way, while pulling is performed. It is, therefore, self-locking, dispensing with key, or snap. B shows screw device in centre of band or girth, which holds ends of chain. When it is desirous to release the horse, all that is required is to run the screw back and the horse is freed from all fetters. 2 shows strap to be applied after horse is down, which is buckled around each hind leg just above ankle joint, which holds hind legs in flexed position and secure. D shows English wrought iron, double-tongue roller buckles. This device is unexcelled for safely securing a horse for any operation. Two men can lay (not throw) a horse down within the area of a blanket.

No rope to wear out, as wear comes on chain; no ropes to *tie*. Weight of rig complete, 20 lbs.

The second drawing shows chain and lock device. Chain runs from 1 to 2, from 2 to hind hobble, from hind hobble to front hobble, thence to 3. The lock device allows the passage of chain but one way (outward). When ready to let horse up all is done by running screw back, which is completed by chain passing from 1 to 2, from 2 through hobbles, which are made on the English style, thereby allowing hobble to drop to floor.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By ADOLPH EICHHORN, D.V.S., New York City.

RESEARCHES ON THE HISTOLOGY OF TUBERCLES, AND THE CURATIVE ACTION OF TUBERCULIN [*A. Broden*].—These investigations extend to the histological development of the tubercles, and the combatting of the organism against the bacilli, in animals which were treated with tuberculin. A great number of such prominent histologists as Baumgarten, Zeigler, Klebs, and others, conclude that the formation of tubercles arises from the connective tissue, while Hiss, Metschnikoff, and others, see their development from lymphatic cells. The author found as very suitable tissue for the investigations the mesentery of guinea-pigs, dogs and goats. Strong cultures of the tubercle bacilli, which originated in man, were injected intraperitoneally in dogs. In these animals the first thing noticed was an exudate, with exclusive leucocytes, having polymorphous nuclei, and with a lively amœboid movement. Depending on the concentration of the inoculated cultures, free bacilli cannot be found between the second and fourth day. The great majority of them are inclosed by the leucocytes, while the smaller part are in the immobile elements. After a few days the leucocytes inclosing the bacilli disappear, and one found bacilli only in the immobile elements. The endothelial cells, which unite with the cells of the deeper layers, quickly absorb the tubercle bacilli, swell up and divide, resulting in the new formation which forms the tubercle. The new formation is infiltrated and covered with polymorphous leucocytes, but which are not contributing to the formation of the tubercular tissue. In regard to the curative action of tuberculin, B. points to the fact that the tubercles in the dogs treated with tuberculin were much more developed than in the control animals. Therefore, the increased tuberculous new formation in those can be considered as a favorable reaction of the system. The tuberculin increases the strength of the system, thereby enabling it to defend itself against the tubercle bacilli.—(*Arch. de Med. Vet. Experim.*)

A PRACTICAL IODIDE OF POTASSIUM INFUSION APPARATUS.—The apparatus which was constructed by Veterinarian Stampfl, from Wilhelmsburg (Austria), consists of a wide-neck bottle, with a capacity of about 1000 ccm. (2½ pints), which is closed by a double perforated rubber cork. In one of these perforations is placed a short and in the other a long glass pipe, which reaches almost to the bottom of the bottle. The short glass pipe is connected with a rubber tube, about an inch long, to which an infusion catheter is applied. The rubber tube is closed by a spring stopper. For use the apparatus is filled with a solution of 10 grm. (150 grs.) of iodide of potassium in about 800 grm. (2 pints) of water, and after closing with the cork it is turned over with the neck to the ground. After the opening of the spring-stopper the air enters the bottle, through the long pipe, and the solution will flow out through the catheter, by which it can be infused into the teats. To be able to divide the solution uniformly for the quarters of the mammæ, the bottle may be graduated so that the quantity infused can be read off in an easy manner. Other superiorities of this apparatus are that the sterile solution will not become infected when the long glass pipe is closed with a piece of cotton. An infection of the mammæ in this manner is almost impossible. This apparatus is so simple in construction that any one is capable of making one for himself.—(*Thierärztl. Centralblatt.*)

COOLING OINTMENTS.—Unna recommends cooling ointments of the following composition: (1) Zinci oxydati, 15.0; sulfuris, 15.0; terr. silic, 10.0. M. ft. purge. (2) Magnes. carbon., 2.5; aqua destill., 5.0; M. adde vaseline, 5.0. (3) Adipis lanæ, 20.0; ol. rap., 10.0; aqua destill., 30.0. (4) Ugt. lement, 10.0;

amyli, 5.0. (5) Pasta zinci mollis in three strengths : Ol. lini, 20.0, 25.0, 20.0 ; aqua calcis, 20.0, 25.0, 20.0 ; zinci oxydati, 30.0, 15.0, 40.0 ; cretæ prep., 30.0, 25.0, 20.0. To relieve pain, add to the pasta zinci mollis, opium, extr. cannabis, cocaine ; for itching, ol. cadin, menthol, thymol. May be applied successfully in moist eczemas, burning in second grade, and in all cases of artificial dermatitis.—(*Mthft. f. prk. Dermatolz.*)

EXPERIMENTAL RABIES (LYSSA) IN BIRDS [*Kraus and Clairmont*].—The authors proved in experimental studies, that rabies may be produced in chickens, geese, ducks, and young pigeons, by both the fixed and the street virus. The time of incubation varies from 14 to 40 days. The form of the disease in birds is the paralytic form of rabies, of which the duration is astonishingly long, and may last several weeks ; it begins with ataxia, followed by paresis, paralysis of the extremities, of the larynx and pharynx. The majority of the animals die from lack of nutrition, showing well marked emaciation. In rare cases recovery took place. The disease may be transmitted from birds to rabbits. Old pigeons are made predisposed to the lyssa infection by starvation. The birds that died from rabies showed changes in the central nervous system, which are similar to those that are found in other animals and man, but not as well marked. [See October REVIEW, page 507.]—(*Wiener Med. Wochenschr.*)

TREATMENT OF PARTURIENT PARESIS WITH CARBOLIC ACID [*Pierom*].—P. received a cow for treatment, which after parturition suddenly began to stagger and finally dropped. She showed the well-known symptoms of milk fever, having a temperature of 39.2° C. He ordered dry friction and lukewarm enemas. Internally, 500 grm. sulphate of sodium and 20 grm. ipecacuanha in a litre of linseed oil was administered. Beside this the cow received subcutaneously 1.5 grm. carbolic acid in 15 grm. glycerine. Two hours after this the cow revived from the lethargy and got up and soon began picking up hay. P. claims that this favorable termination is to be credited to the carbolic acid (?).—(*Giorn. d. R. Soc. Acad. Vet.*)

RUPTURE OF THE PERICARDIUM AND OF THE LEFT VENTRICLE [*Brunet*].—A horse, after feeding, was hitched to a manure wagon, and died suddenly while under way. It was known that the driver struck the horse several times with the manure fork. On autopsy the organs of the abdominal cavity did not show anything particular. The diaphragm on the right side was torn in two places with irregular bloody edges. The upper rupture was 5, while the lower was 25 cm. long. The thoracic cavity did not contain any free blood; the lungs were filled with blood to their highest capacity. The apex of the heart passed out through a slit of the pericardium. The slit was on the anterior surface of the heart, and extended on its whole height. The edges were slightly reddened; the serosa was normal; the pericardium did not contain any blood. Corresponding with this slit the wall of the left ventricle was ruptured in two places, but did not extend through the whole thickness of the heart muscle. Their length was 4-5 cm. They began at the height of the auriculo ventricular groove, extending downwards, toward the apex of the heart. The muscles of the heart were somewhat of a diffused color, the ventricular wall appeared to be thickened, and the endocardium and valves were intact. The anterior sharp edges of the ribs, especially the one of the 4th rib, extended into the thoracic cavity. Just at the height of the anterior sharp edge of the 4th rib were the slits in the pericardium and heart muscle. B. thinks that the ruptures in the diaphragm were due to extreme strain in pulling. In explanation of the ruptures of the heart muscle he says that the somewhat hypertrophied and degenerated heart labored very hard during the exertion, by which it reached the thoracic wall, and as to being struck with the fork, the anterior edges of the ribs were directed into the thoracic cavity, and during a state of systole of the heart this was cut on the sharp edge of the rib. B. observed a similar case in which the ribs were intact after a collision with a shaft. The heart in this case was totally ruptured.—(*Rec. de Med. Vet.*)

FRENCH REVIEW.

PARALYSIS OF THE RADIAL NERVE FOLLOWING SUPPURATIVE ADENITIS OF THE AXILLARY LYMPHATIC GLANDS IN A DOG [*By J. B. Scoffié and E. Seres*].—This dog was six years old, and had been treated for some time on account of lameness of the left fore leg. He had had an intermetacarpal fistula of the paw of that leg due to some foreign body, of which he had recovered. His condition at the time he was brought to the authors was such that treatment was not advisable. He was very lame on walking, running on three legs, the antibrachial muscles being atrophied, the olecranon muscles very much so, and remaining insensible to an interrupted electric current. The diagnosis of the paralysis of the radial nerve was made, but its origin remained so far unknown, until the post-mortem was made. Then it was found that the olecranon muscles were atrophied, their group being reduced to the condition of a thin flabby band of straw-yellow color. The extensors of the carpus and of the claws were atrophied and pale. On removing the leg from the trunk a mass formed by the hypertrophied axillary lymphatic glands was exposed, forming three distinct lumps, two of which were fluctuating and contained pus. The radial nerve was whitish, and before passing through the suppuration of one of the glands it formed a thick cord which had its origin at the 8th cervical pair. Examination by the microscope revealed lesions of the nerve itself, lesions of its roots and of the spinal cord. The whole history of the case can be reconstructed : the dog wounded its paw with a foreign body, the formation of a purulent centre took place, from it pyogenous germs reached the axillary glands, the adenitis formed, the nerve is involved and undergoes degeneration, hence that of the muscles under its influence.—(*Revue Veterin.*)

CONTINUATION OF VICIOUSNESS AND PERSISTENCY OF GENESIAL INSTINCTS BY INCOMPLETE CASTRATION IN THE HORSE [*By J. Bournay*].—In a previous article the author called the attention of practitioners to these defects by recording a case in which a horse that had been castrated had manifested them, and where he had shown that by extirpation of the spermatic cords, a second castration, excellent results could be obtained. This second case confirms his view. A handsome horse recently bought was brought to him for examination. He looked well, was a beautiful animal, but seemed nervous, restless and neighed frequently; he had no erection. His testicular region showed two infundibuliform cicatrices. Five days later, the disposition had changed, he was ugly, kicked, bit and was dangerous to approach. He was thrown for examination. On palpation the inferior extremity of the cord was found swollen as big as a nut and the cord itself felt enlarged, a condition which was detected readily, by rectal exploration, at the superior inguinal ring. In other words, there was abnormal swelling at the extremity of the cord and insufficient atrophy in its entire course. The animal was operated upon by resection of the cords, and since has worked regularly. Microscopic examination of the end of the cord did not reveal the slightest indication of testicular torture, which might have served to explain the character of the animal before the resection of the cord.—(*Revue Veterin.*)

LACERATION OF THE PERINEUM, PERMANENT TYMPANITES OF THE VAGINA AND CONSECUTIVE STERILITY IN A MARE [*By J. Bournay*].—Among the many causes of sterility in large females, a constant tympanitic condition of the vagina may have been overlooked. This case shows that it is not to be neglected. A valuable mare, thoroughbred, during a difficult labor three years before, had a laceration of the vulva, at the upper commissure. Towards that commissure the labiæ are apart and the vulva open. The solution of continuity is 35 millimeters long and runs towards the anus, a little to the right. On exploring the vagina, its *cavity is found excessively dilated, measuring in front of the anterior straight 23 centimeters in height and about 20 in width. As to its length, the entire forearm can be introduced; it must be at least 50 centimeters.* The walls of the vagina are smooth as well as the os. When the mare micturates or defecates there is free entrance and exit of air from the vagina. It is possible that the sterility is due to the abnormal dilatation of the vagina, due to the tympanitic condition of the organ, which itself is allowed by the imperfect closing of the vulva on account of the laceration of the upper commissure of that part. With most minute antiseptic preparations the operation of perineoraphy is performed. After refreshing the edges of the laceration they were closed by three sets of sutures, one to bring the cutaneous borders together, one for those of mucous membrane and a third for the whole mass of the lips. The after treatment consisted in sublimate irrigations, dusting with iodoform, collodion and wadding. The success was complete. Discharged after a few days, the vulva repaired, the tympanites disappeared, the vagina retracted, and two months later the mare was covered without trouble and became pregnant.—(*Revue Veterin.*)

DOUBLE GESTATION IN A MARE [*By M. A. Porcherel*].—Large female solipeds are normally uniparous, although cases are recorded where 2, 3, 4 and 5 fœtuses have been born at a single delivery. According to Cornevin, the average is about the following: for mares, about one double parturition out of 1000; in the female donkey, one in a hundred. The products are of the same or of different sex; they sometimes are of different species when the mare, for instance, has been successively covered by a stallion and by a male mule. This last is rather rare. The case here recorded is one more to record. The owner of a mare had her covered the same day by a stallion and a male mule; the covering being done one immediately after the other. The mare gave birth to twins, one a mule, the other a filly, both normally built.—(*Journ. de Zoötechnie.*)

ITALIAN REVIEW.

Two Cases of Acute Poisoning by the Permanganate of Potassium [*By R. Carrozzo*].—The solution of this salt for intestinal antisepsy being frequently used at the Royal Veterinary School of Naples, and having employed it for more than two years with this object, the author records two cases of acute poisoning whose interest lies in the fact that he has found nothing on the subject in the books he had at his disposition. In the first case the permanganate was prescribed in solution, 90 grammes in one litre of water, to be administered in two doses, to relieve a case of *intestinal fermentation;* 7 grammes of tannic acid in pill was also to be given. One hour later, after the first dose was given, the animal was taken with muscular tremblings all over the body; the head was kept down, frequent passages, soft, white and very offensive; the head was covered with cold perspiration, as well as the whole body, as if the animal had had an injection of pilocarpine; the visible mucous membranes were pale, pulse frequent, small, regular; temperature below normal, 36.7° C.; dyspnœa well marked and paroxysmal. The second dose of the prescription was not given. Frictions of spirits of turpentine were applied, and drenches of hot wine were administered, and in a few days recovery was complete. The second half of the litre was given to another animal without effect. In the second case the same treatment was prescribed for an animal suffering with fœtid diarrhœa. After five hours similar symptoms were manifested, but there were besides abundant saliva, nasal and lachrymal hypersecretions, cold extremities, colic, etc. After a few days of improvement, a relapse took place and the animal died. Post-mortem could not be made.—(*Clinica Veterin.*)

Contribution to the Radical Cure of Capped Hocks [*By R. Carrozzo*].—Following a *modus operandi* employed by Prof. Lanzillotti-Buonsanti, which consists in the extirpation of the cyst which forms the capped hock, the author resorted to it on a horse which had his left hock disfigured. Several forms of treatment had been used, down to the subcutaneous puncture, followed by blistering, but nothing had succeeded; there always remained a small tumor, which, although smaller than at first, was an eye-sore to the beauty of the animal, and the owner was willing to have anything done to obtain a cure. The operation of Prof. Lanzillotti-Buonsanti was suggested and accepted. The animal was cast and properly secured. A bandage of Esmarck was applied, and the parts strongly disinfected. By an incision made in the centre of the tumor the cavity was exposed, and the upper part of the cyst excised, not without a great deal of difficulty, on account of the thickness of the cellular tissue and the adherence of the cystic membrane. The lower part of the cyst was still more difficult to dissect, but ultimately it was removed. There was considerable annoying hæmorrhage, but not serious. The wound was thoroughly cleaned, a solution of iodoform in ether was laid over, a drainage tube applied and silk sutures closed the incision. The tube was removed on the seventh day. On account of the movements at the hock some stitches gave way. A thick blister to immobilize the part was applied and the result was a perfect hock, with only a small imperceptible cicatrix.—(*Clinica Veterinaria.*)

Ulcerated Wound of the Internal Face of the Left Hind Fetlock—Operation—Recovery [*By Prof. Lanzillotti-Buonsanti*].—This mare interfered much, and as a result had first a single wound, then a thickening, and later a tumor quite large on the inside of the left hind fetlock with an ulceration, round, bleeding easily, and attached to the tumor, which is rather puffy and quite loose at its base. Encouraged by the results he had already obtained in two similar cases, the owner proposed to resort to the extirpation of the growth, plastic operation somewhat analogous to that used for extensive broken knee. The mare was cast. properly secured and the parts well prepared for operation. Two curved incisions were started from the upper part of the growth down to nearly the middle of the os suffraginis, where they met again, involving between themselves an elliptoid part of skin, in the centre of which was the ulcer. The edges being dissected, the thick mass was made free and removed with care, its deep surface resting upon the blood vessels, which were healthy. The incision made had left a space of lost substance measuring 12 centimeters in length and 3 in width. The wound was cleaned, a drainage tube laid in place, and the edges brought together with interrupted sutures. The treatment consisted in irrigations through the drain of sublimate solution. The result was most satisfactory. Cicatrization was suppurative only in the superior third of the solution; in the lower part it was completed by first intention. In the first case operated by the author adhesive cicatrization was thorough in the entire wound, except in one spot, where there was a cutaneous slough. In the second cicatrization by first intention was typical.—(*Clinica Veterinaria.*)

PRIMITIVE TRAUMATIC SERO–BLOODY EFFUSION OF THE WITHERS [*By Prof. Lanzillotti-Buonsanti*].—Two cases of this nature are recorded by the author in which a slight modification in the treatment was followed, but both recovered in a very short time. In the first case it was a single effusion on the left side of the withers, with causes unknown, which had resisted treatment with blisters. The diagnosis had been easily made and confirmed with explorating puncture. The treatment consisted in a single incision, some 12 centimeters long, which allowed the escape of about 200 cubic centimeters of liquid; the cavity was scraped, all foreign bloody extravasations, connective tissue shreds and mortified muscular fibres were removed, a drain tube inserted and the wound closed with interrupted sutures. Repeated irrigations through the drain with sublimated solution were followed by rapid cicatrization. In the second case, the cyst was still larger, involving both sides of the withers. The *modus operandi* was somewhat different. After removing by a puncture made with a trocar on the top of the tumor the liquid that it contained, say some 400 cubic centimeters, two incisions were made in front and back of the lower part of the cyst on the left side, and through these two drain tubes were inserted and brought out at the point where the puncture had been made and which had been enlarged by a short cut of the bistoury. Similar manipulations were made for the right side. With a spoon of Volkmann the walls of the cyst were scraped, the clots of fibronic and small moving bodies of connective tissue were removed. The after treatment consisted in repeated irrigations of sublimate solutions. Sixteen days after the drain tubes were removed, and to hasten the absorption of the swelling, a round strong blister was applied. In four weeks from the operation, recovery was complete.—(*Clinica Veterinaria.*)

CONGENITAL STENOSIS OF THE CARDIA [*By Dr. A. Gasparini*].—Two days after birth, a young colt began to exhibit regurgitations of milk and saliva, which reappeared periodically every six or eight days. A month later, the neck became deformed, and on the left side there appeared a swelling, cylindroid in form, about the size of a fist, and which extended in the jugular groove as a thick cord which seemed to be the carotid. No other abnormality externally, but the swelling, filled with food or saliva, kept on increasing. The animal was rapidly losing flesh, and towards the end of its life the vomitings were more constant. He would chew and swallow his food normally, but a few minutes afterward he would arch his back, stretch his neck, lower his head, and by a spasmodic motion of the lower jaw the regurgitation would take place. He died from inanition. Œsophageal catheterization had been applied to see if there was a foreign body or some intra or extra œsophageal growth, but the examination was not successful. At the post-mortem the œsophagus was found of uniform size in the cervical and thoracic portions, but at the entrance into the stomach there was an oval dilatation, followed by a sudden contraction, which would scarcely allow the introduction of a quill; there was no foreign body, no tumor, the muscular coat was flabby and discolored, and the mucous membrane formed a kind of narrow cylinder showing the gastro-œsophageal opening. The stomach was small and atrophied, of a capacity of not more than one litre; the pyloric opening was normal. No treatment was attempted—none could be.—(*Riforma Veterinaria.*)

ON THE TREATMENT OF TOE CRACK [*By Prof. Pench*].—For ten years the author has used this mode of treatment, which he claims fulfils all the essential required condition of recovery for toe cracks, viz.: The immobilization of the borders of the crack. He considers it superior to all the other means recommended, insuring safety and certainty of success. There is no need for special mode of shoeing, no bandage, no stimulating applications, etc.,—it is a simple "carrage" of the cracks analogous to an old method, but simple in its application and economical in its results. This method consists in drilling with a gimlet a tract through the wall and implanting in it the blade of a nail, well hammered, whose head has been taken off and the extremity bent and turned over. When the nail has been driven gently through the tract both extremities are riveted over as an ordinary nail. Every four or six weeks a new nail is driven in. In some animals it may be necessary to keep up this monthly nailing for two or even three years.—(*Revue Veterin.*) [We fear few American owners of horses would undertake a treatment so uncertain in its results as to occupy three years for recovery, and as the hoof grows new about three times during that period it must fail entirely to cause a union or there is persistent resplitting of the hoof. We would suggest as much better, quicker and more surgical, the insertion of a horseshoe nail at one or two points to immobilize the edges of the crack, the higher nail being placed about an inch and a half from the coronary band, then deep cauterization of the wall above the nails, removal of the horn for a distance of one inch on each side of the crack, and a subsequent burning across the crack at the lowest point of the thinned wall entirely through the horn to the lamina, thus entirely destroying the continuity of the fibres, and making reopening impossible. In a week remove the remnant of the crack from the coronary band to the point of deep cauterization. By this method the writer seldom fails to effect a cure, and the horse can resume work in from three to four weeks.—R. R. B.]

BIBLIOGRAPHY.

SURGICAL OPERATIONS. By Dr. W. Pfeiffer, of the University of Giessen. Second Edition. Richard Schoetz, Berlin, Luisenstrasse, 36.

I remember the time, when I was a student, the practical operative classes were peculiarly carried out, at least at the school where I was. The students were almost left to themselves, and had for guides in their manipulations only their notes. Then works on operative surgery were not as plentiful as at present. The professors who had charge of the classes had too much to do to show every one of us the proper way to work, or to correct imperfect manipulations. How different to-day. Only a few years ago (in 1895) Prof. Cadiot published his "Manual of Exercises in Surgery," inaugurating a new road for the benefit of the practical education of his students; this little work was soon translated and published in America. In 1897 Prof. Pfeiffer, of the University of Giessen, issued another, which Prof. Williams translated and published a short time ago, with the addition of the description of a few typical American operations. All of those we have already noticed in the REVIEW at their proper time.

To-day we have received the second edition of the little book of Prof. Pfeiffer. In it we find added a few operations which had not been considered in the previous issue—castration and some special neurotomies. It is, as was its predecessors, well illustrated, and to all appearances is likely to obtain great success among German practitioners, principally students.

With all the facilities that are now at hand, with the numerous works on practical operative surgery, which have been issued, and with the several manuals of operative exercises which are now found in all languages, the specialty of surgery in veterinary medicine will not be long in assuming a proper place similar to that it occupies in her sister science. A. L.

ATLAS DER ANATOMIE DES PFERDES (Atlas of Equine Anatomy). By Dr. Med. Vet. Reinold Schmaltz, of the Veterinary High School of Berlin. (1st part.) R. Schoetz, Berlin.

We have received from the house of Richard Schoetz, of Berlin, the first atlas of a series of four which are to form an illustrated work on the anatomy of the horse, by Prof. Doct. R. Schmaltz, V. S., who occupies the chair of anatomy at the Imperial Veterinary High School of Berlin. There is no text, properly speaking,in this work, but the arrangements and minuteness and completeness of each figure in each plate are such that one who studies them cannot help but become readily familiar with the description of the subjects, and learn all about their general aspect. In the atlas that we have received there are 23 plates, handsomely and correctly done; each bone, especially those of the extremities, showing every peculiarity of their external conformation. Among those 23 plates, 10 of them have duplicates, made on thin transparent paper, upon which the outlines of the bones are marked in blue ink, and upon these the insertions of each muscle are outlined on dotted lines, which indicate perfectly the boundaries of each insertion. Plates 12, 13, 14 and 15 show the external appearances of the cervical, dorsal and lumbar vertebræ and of the ribs; while the 16th and 17th show the insertions of muscles. In plate 18 the sternum with the triangularis and the bloodvessels. The sacrum is illustrated in plate 19. In the 20th we have the lumbar regions; plate 21 shows the vertebral column, with the ribs, forming the thoracic cavity and the muscles pertaining to it. The last two plates show the whole view of the trunk with the upper part of the extremities and the insertion of the abdominal muscles.

We have carefully examined every plate and every bone represented; we have given minute attention to the drawing of the insertions of every muscle, and this study has been for us a great source of enjoyment. Years ago, as far back as 1860, we contributed to the plan of a similar work, the very plates of Prof. Schmaltz; we worked and made them natural size; but the work, nearly finished, was not published for want of an editor. Prof. Schmaltz has done well, we believe; this work will no doubt fill a good place in the study of veterinary anatomy and become a benefit to every student of every nation. The universal veterinary anatomical nomenclature, which was announced at the Congress of Baden, will permit its being read by every one. There is no doubt that the completion of the work will be anxiously looked for. A. L.

OBITUARY.

JOSIAH HENRY STICKNEY, M. R. C. V. S.

The death of this well-known veterinarian occurred at the Massachusetts General Hospital, Boston, February 4th, after an illness of about one week. His funeral took place at Mount Auburn Cemetery Chapel, Cambridge, at 12 M., February 7th, and was largely attended, among those present being a large delegation of former professional associates.

In the above simple announcement the veterinary profession of this country will learn that there has departed from earth one of its great pillars of support—one of those noble characters which in its early struggles to gain a foothold among the learned and honorable professions were so few; a little coterie who stood together and demanded recognition through examples of worth and honorable dealings. One after another of the "old guard" are passing away, and soon the roll-call of those who were present at the birth of our national association will be answered by a solemn echo from beyond the grave. Only last month we were called upon to record the death of Charles Burden, one of its charter members, which is quickly followed by that of Dr. Stickney, its first President (1863–64).

Josiah Henry Stickney was born in Boston, Feb. 11, 1826. His father, Josiah Stickney, of Watertown, was a merchant and banker there; he was President of the Market Bank and of the Massachusetts Horticultural Society, and a director of the Western Railroad and also of its successor, the Boston & Albany Railroad. After attending the well-known private school of Gideon F. Thayer in Chauncy Place, Mr. Stickney, at his father's desire, entered business in 1849 as a member of the firm of Cutler & Stickney, at 1 India Street. The paint, oil and glass trade was not congenial to the young man; the outcome was that in 1854 he commenced to study medicine with Dr. Daniel D. Slade; later he attended the Tremont and Harvard medical schools; while a student he spent one year as house surgeon at the Massachusetts General Hospital, where he died 43 years later; he graduated in 1858 with the degree of M. D.

Dr. Stickney then went as surgeon on one of Train's vessels, sailing to England. On his arrival in that country he entered the Royal Veterinary College at London, from which he graduated with high honors in 1859. When he returned in 1860 a severe cattle plague of pleuro-pneumonia was raging in Massachusetts, and Gov. Banks appointed him to the State Board of Health, and he did much to eradicate the plague in four years. Dr. Stickney then went into practice as a veterinary surgeon with great success, and was employed actively in his profession up to within a short time of his death.

Dr. Stickney was married in Waltham, Oct. 8, 1861, to Elizabeth Shannon, daughter of Jonas C. March, of Boston. His widow and four children—Mary, wife of Henry Swinscoe of Philadelphia, Ellen F. Stickney, Josiah Stickney of Clinton, and I. Lombard Stickney of Jamaica Plain—survive him.

CORRESPONDENCE.

AN AMBIGUOUS CRITICISM.

ITHACA, N. Y., February 18, 1901.

Editors American Veterinary Review:

DEAR SIRS:—There appears in the REVIEW for January, 1901 (p. 745), under the caption of "Veterinary Topics of Today," by the head of the "Department of Therapeutics" of the *Journal of Comparative Medicine* some remarks in relation to the recent booklet, "A Course in Surgical Operations," the intent or motive of which is not clear.

Dr. Martin says: "While many of the operations recommended in this work are a decided innovation in American veterinary surgery, the value of several from a practical point of view may be questioned." The book recommends none of the operations described at all; it does not advise median neurectomy for ringbone or heaves; it merely describes one (not the only) method of operating in advisable cases. Nor can we see the use of the criticism "from a practical point of view" when he does not point out which of the operations are dangerous innovations, nor why they are dangerous.

Proceeding, he says: "There is a vast amount of difference in point of utility and also from a financial standpoint in performing an experimental operation upon a worthless animal in the surgical clinic of a veterinary school and that performed on a valuable animal in private practice." Certainly. But what veterinary school performs "an experimental operation upon a worthless animal in the surgical clinics"? We know of none, and if Dr. M. graduated from such an institution we pity them both. But if so, does it warrant Dr. M. in classing all institutions with that one?

The operations which Dr. M. so indiscriminately assails are not experiments, but have been proven in the best veterinary practices in Europe and America. If M. refers to the American operations, most of them were studied out in his own State, some of them in a country practice within 50 miles of him, and were proven before Dr. M. entered the profession, and were used on animals of as high average value as are kept in Dr. M.'s territory. All of the operations have been and are now regularly used on good animals and the results have been made public on their merits.

Continuing on p. 748 of the same article Dr. M. very nearly commits an "innovation" himself by reference to the "rod-like bacilli" of malaria. Until Dr. M. publishes full details of his recent discovery as to the etiology of malaria we would suggest that readers of the REVIEW shall not abruptly desert the views of all the other modern investigators to the effect that the parasite belongs to the protozoa and accept the views of Dr. M. that it is caused by a bacillus. Very respectfully,

W. L. WILLIAMS.

ILLINOIS VETERINARY EXAMINING BOARD—A REPLY TO DR. SWAIN.

CHICAGO, Feb. 12th, 1901.

Editors American Veterinary Review:

DEAR SIRS:—I little thought that when I took a random shot at the committee of the Illinois Veterinary Medical and Surgical Society, that I was going to hit the king bee of the hornet's nest. But such seems to have been my luck. He says so, and his groanings indicate that he has been hit hard. I will not take up your valuable space by attempting to answer the Doctor's charges in detail; in fact, such a course is rendered unnecessary by the Doctor himself, as I could string no words together that would emphasize more strongly the position I took in my last epistle than the learned Doctor has himself done for me in his letter. The "dementia" the doctor speaks of has been much in evidence. In fact, it is an all-pervading characteristic of this class of practitioners. Long practice in pretense and deception has so blunted the finer instincts that it is easy for their depraved imaginations to surround themselves with a halo of greatness, in which they live and move. They are more to be pitied than condemned. We have met with many forms of this "dementia," but for monumental egotism the author of the letter in the last number of the REVIEW stands unique. He imagines himself to be the peer of such men as Abraham Lincoln, Daniel Webster, Burns, Burritt, Shakespeare, Moses and Solomon! Wise men have been searching the country over for a fit subject for the Hall of Fame, and, lo, we have found him! One to whom future generations of veterinarians may do reverence, for has he not said so? I am loath to disturb the Doctor's dreams, but to be truly great one must have the jewel of consistency, which the Doctor seems to have lost. As a sample of the "vigorous protests" spoken of, I will append one from the Doctor himself on his own letter head. It will give the readers of the REVIEW some idea of the troubles examining boards have to contend with in dealing with these men, who boast of "soldiers' duties," "picket lines," *et cetera*, *ad nauseam*, but when a simple duty is presented to them they make an ignominious retreat.

For many non-graduate practitioners I have the profoundest respect, and for Dr. Swain nothing but pity in that his undoubted talent has been allowed to run wild.

JAMES ROBERTSON.
334 E. 44th Street, Chicago, Ill

S. H. SWAIN, VETERINARY SURGEON.
Office: 127 South Franklin Street.
Telephones: Office, 343; Residence, 249.

The Castration of Ridgling Horses
and
Spaying of Cattle a Specialty.

DECATUR, ILLINOIS, Sept. 20, 1899,
Hon. C. P. Johnson, Sec. B. V. E., Springfield, Ill.:

Yours of the 18th inst. is before me, contents noted, and replying would say that while the men mentioned in my letter of some time past as not qualified to practice are wholly unfit as to qualification as veterinarians, yet, after considering the matter, I do not feel that I am justified in going into any kind of controversy or trial of their qualifications and thereby incur their ill-will, so if the Board does not deem it proper to call them before that body and decide the matter for themselves, I hardly think it prudent for me to interfere further; these men and I are perfectly friendly, and I had no object in writing as I did except the good of the profession.

I will be pleased to receive my certificate at your earliest convenience. Very respectfully, S. H. SWAIN.

SOCIETY MEETINGS.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The eighth annual meeting was called to order by President S. H. Ward, Jan. 10, at 1.30 P. M., at the Metropolitan Hotel, St. Paul.

The following members responded to roll-call: Drs. C. C. Lyford, M. H. Reynolds, S. D. Brimhall, R. Price, L. Hay, K. J. McKenzie, S. H. Ward, J. G. Aunaud, J. A. Hainsch, J. N. Gould, J. W. Gould, J. J. McLaughlin, B. A. Pomeroy, H. C. Lyons, J. S. Butler, H. C. Peters, M. J. Sexton, F. H. Farmer, J. P. Foster, R. LaPointe, and D. M. McDonald.

The minutes of the last meeting were read and approved.

President Ward then gave his address, going over the work done by the association pretty thoroughly and dealing with the work it should take up in the future. Among other things, the Doctor spoke of a bill to be introduced at the present session of of the Legislature to reimburse owners of condemned glandered horses and asked the support of the members in its behalf. The Doctor thought that such horses should be appraised at about two-thirds their value, and in order for the owner to secure the indemnity he must give satisfactory proof that the condemned animal has been owned in this State for at least three months prior to being condemned. Dr. Ward also spoke of our State Examining Board, and thought it should be composed of qualified veterinarians who were members of this association. He then thanked the Secretary and members for their hearty support during his term of office.

The Treasurer's report was then read and accepted.

The following gentlemen were then duly elected to membership: Drs. J. M. Lamber, St. Peter; Oscar Rydell, Wheaton; F. A. Ilstrup, Wilmer and H. A. Hela, Cokato.

Dr. S. D. Brimhall next reported for the Committee on Infectious Diseases. Eight different outbreaks of hæmorrhagic septicæmia had been reported since the last meeting; anthrax only one outbreak, in which two cases were reported; cerebrospinal meningitis had been reported in two instances; several cases of rabies had been reported; two outbreaks of foot-rot in cattle had been investigated and two others reported.

Dr. Reynolds gave his report on recent advances in veterinary surgery, which proved quite lengthy and dealt extensively with matters pertaining to recent advances.

Dr Lyford reported for Committee on Legislation, and quite a lively discussion followed. Dr. Price thought we should call the attention of the horseshoers' union to the fact that there is a law in this State governing the practice of veterinary medicine and surgery.

On motion, the several reports were accepted and committees discharged.

Dr. Price then read his paper on "Rabies," which proved very interesting, as a great deal of it was taken from actual experience with cases in the Doctor's practice, and numerous photographs of different cases were passed among the members. Dr. Lyford led the discussion of Dr. Price's paper and gave his experience in autopsies while in London with Dr. Fleming.

The following officers were elected for the ensuing year:

President—Dr. J. N. Gould, Worthington.

First Vice-President—Dr. R. Price, St. Paul.

Second Vice-President—Dr. J. J. McLaughlin, Blue Earth City.

Secretary and Treasurer—Dr K. J. McKenzie, Northfield.

Trustees—Drs. L. Hay, J. W. Gould and H. C. Peters.

On motion, it was decided that Northfield should be the place for holding the next meeting. The meeting then adjourned for supper.

At 7.30 P. M. J. P. Foster read his paper on "The Management of Brood Mares." A lengthy discussion followed, touching on the best purgatives to be given a mare in foal and the treatment of mares about to abort.

Dr. H. C. Peters next read his paper entitled "A Non-Classified Disease in Horses." Dr. Aunaud reported similar cases occurring in Beltrami County, and Dr. Ward reported cases of a similar nature met with while practicing in Manitoba.

Dr. Gould, the newly elected President, then appointed the following committees:

Colleges—Dr. D. M. McDonald.

Infectious Diseases—Dr. S. D. Brimhall.

Finances—Dr. J. J. McLaughlin.

Legislation—Drs. M. H. Reynolds, H. C. Lyons and M. J. Sexton.

Recent Veterinary Literature—Surgery, Dr. J. G. Aunaud; Bacteriology, Dr. R. Price; Medicine, Dr. L. Hay.

The meeting adjourned until January 11th, at nine A. M.

The association met at the Bacteriological Laboratory of the State University, where several autopsies were held for the demonstration of hæmorrhagic septicæmia in previously inoculated calves. Dr. Wilson of the University, who has been making a special study of the disease, gave the association a talk on the bacteriology of the disease. After dinner the members met at Dr. Price's infirmary for clinics. After the clinical material was disposed of the meeting was again called to order and Dr. Brimhall read his paper on "Hæmorrhagic Septicæmia." The paper embraced statistics of the disease, together with full symptoms and post-mortem investigations. The paper was well received by the association.

The following members were appointed to prepare papers for the next meeting: Drs. Ward, Hay, Amos, McDonald, LaPointe and Price. The meeting then adjourned.

K. J. McKENZIE, *Sec'y. and Treas.*

ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION.

The twelfth annual meeting came to order, with President V. G. Hunt in the chair, on Jan. 9th, at Decatur. The roll-call was responded to by a goodly number. The minutes of the previous meeting were read and approved.

On motion, the chair appointed a committee of three to draft resolutions endorsing the candidacy of Dr. W. J. Martin, of Kankakee, for the office of State Veterinarian. A copy of the resolutions was signed by the President and Secretary and was forwarded to Governor Yates, at Springfield.

Dr. V. G. Hunt being first on the programme for a paper on "Metritis," he gave a very interesting and instructive account of this disease and the various modes of treatment, and was responded to by Dr. S. H. Swain and Dr. S. D. Brown.

Dr. W. A. Swain next read a paper on "Muscular Rheumatism," responded to by Drs. L. C. Pray, V. G. Hunt, and C. A. Hurlbutt.

Dr. A. Travis then delivered a short talk on the treatment of "Stomatitis," responded to by Dr. H. W. Leavitt.

An hour was then devoted to the discussion of the foregoing subjects, after which adjournment was taken for dinner.

Reports of cases being taken in order, many interesting subjects were introduced and discussed at length.

At 10.30 the entire association partook of an oyster supper at the expense of Neisler and Burwell, wholesale druggists, and adjournment was taken until 8 A. M., January 10th.

January 10.—Meeting called to order by President Hunt.

Dr. R. W. Brathwait being absent, Dr. C. A. Hurlbutt gave the association an interesting talk on "Antiseptic Surgery," responded to by Dr. S. D. Brown.

Dr. S. H. Swain being next on programme, read a very concise essay on "Equine Canker," responded to by Drs. V. G. Hunt and W. J. Martin.

On motion, the length of time allowed to each person having the floor was limited to three minutes.

On motion, the location and date of the next meeting were fixed in Decatur, Ills., on August 8th and 9th, 1901.

The association next proceeded to the election of officers for the ensuing year. Dr. V. G. Hunt, of Arcola, was reëlected by acclamation to fill the office of President; first Vice-President, Dr. John Osborne, of Nokomis, Ills.; second Vice-President, Dr. D. K. Goodale, of Mt. Vernon, Ills.; Secretary, Dr. W. A. Swain, of Mt. Pulaski, Ills.; Treasurer, Dr. S. H. Swain, of Decatur, Ills.

Standing committess appointed were: Committee on Programme—Drs. V. G. Hunt, S. H. Swain and W. A. Swain. Committee on Membership—Drs. S. H. Swain, John Osborne, J. R. Groves, J. M. Reed, and W. C. Dawson. Committee on Legislation—Drs. V. G. Hunt, S. H. Swain, and John Osborne.

The meeting then adjourned until August 8th and 9th, 1901.

W. A. SWAIN, *Secretary.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The first meeting of the Committee of Arrangements for the Atlantic City meeting was held in Jersey City, N. J., Feb. 18th. The chairman, Dr. Wm. Herbert Lowe, of Paterson, N. J., presided, and Dr. T. E. Smith, of Jersey City, was elected Treasurer of the committee. Preliminary plans were made and the work of the committee outlined. A large fund is to be raised, and everything will be conducted on a magnificent scale at Atlantic City next September. It is proposed that an entire half day be devoted exclusively to the surgical clinic; that operations be performed with due regard to modern scientific methods and principles, not overlooking aseptic and antiseptic precautions. Only surgeons of known ability and skill will be asked to operate. No surgeon will be given a place on the clinical programme unless he gives the committee assurances that he will be present and operate. The committee believe that the surgical clinic is a popular and profitable feature of the meetings of the association, and therefore propose to use every effort possible to overcome the difficulties and failures of those of former meetings and make it in every way worthy of the first meeting of the new century.

The profession in New Jersey feel very grateful for the co-operation of Pennsylvania, New York, and other neighboring States. With such efficient and earnest co-operation on the part of the local veterinary forces there seems to be no doubt but that the Atlantic City meeting will eclipse any meeting ever held on the American continent. It is said that the interest throughout the West in regard to the 1901 meeting is greater than has ever before been known in the history of the association.

ALUMNI ASSOCIATION OF THE VETERINARY DEPARTMENT OF NEW YORK UNIVERSITY.

Notices were sent to the graduates of the N. Y.-A. V. C. for the purpose of organizing an Alumni Association of the Veterinary Department of New York University.

The meeting was held at the College Building, Feb. 21st, 1901. Dr. Eichhorn was installed as temporary Chairman, Dr. Fink as temporary Secretary.

The first order of business was the nomination of officers for the new association, which were as follows:

President, Dr. Fink.
First Vice-President, Dr. J. J. Hayes.
Second Vice-President, Dr. W. A. Young.
Secretary, Dr. Eichhorn.
Treasurer, Dr. Meiners.

Moved that the nominations be closed and the Secretary cast a ballot for each officer.

Moved and seconded that this association be called the Alumni Association of the Veterinary Department of New York University.

By adoption, all graduates of the New York College of Veterinary Surgeons and American Veterinary College prior to the amalgamation of the two colleges, be eligible to membership in this association.

It was decided to adjourn and call a meeting on April 1, for the purpose of admitting new members, and arrangements to hold a joint banquet on the same evening of the Alumni

Association of the A. V. C., N. Y. C. V. S., and the Veterinary Department of New York University.

A vote of thanks was extended by the new organization to Dr. Hanson, for assisting us in founding the new Alumni Association.

The meeting adjourned. A. EICHHORN, *Secretary*,
141 W. 54th Street, New York City.

NEWS AND ITEMS.

A BILL has been introduced in the California legislature making the "doping" of race horses a felony with a maximum punishment of five years in the penitentiary.

A COMPETENT authority estimates that during the past two years the British government has purchased in the United States for service in South Africa horses and mules to the value of $100,000.

AMONG those who took the Civil Service Examination for assistant meat inspectors of the Bureau of Animal Industry at New York on February 5 were Drs. Adolph Eichhorn, W. L. Johnson, John J. Hayes, Deronde and Gill (not Harry D.).

A. MITCHELL, D. V. S., 5th Cavalry, U. S. Army, has resigned his commission on account of the failure of Congress to give rank to the Army Veterinarian, and is now in the transport service of the British Government.

W. L. JOHNSON, D. V. S., of Brooklyn, N. Y., having been ordered by his physician to take a sea voyage, has united business with his quest for health by engaging with the British government to accompany a transport of American horses from New Orleans to South Africa.

PROFESSOR JOSEPH MCFARLAND, the well-known bacteriologist and pathologist of Philadelphia, has associated himself with the manufacturing drug house of Parke, Davis & Co., of Detroit, where he will devote himself to purely scientific research in his favorite field.

AT the annual meeting of the League of American Wheelmen (the national association of bicycle clubs) held last month, there were but 46 delegates present, against hundreds in former years. The Secretary's report showed that during the past year the receipts from all sources were $27,000, against $75,000 the previous year.

"It is estimated that in the first five years of the twentieth century the enormous sum of $100,000,000 will be expended for automobiles."—(*Item going rounds of the press.*) It is also estimated that at the close of this period of automobillions that the public will be so surfeited that their abandonment will follow in the next half decade for all practical purposes.

THE average life of usefulness of an American horse in the British Army in South Africa is said to be six weeks. Ten thousand of such animals are being transported to that country every month, and the fear is expressed by the English representatives that the American supply will not hold out much longer.

DR. J. C. CALLANDER, a well-known veterinary surgeon of Parkersburg, W. Va., while administering a physic ball to a horse on January 18 received a slight abrasion of the skin on his hand. The following day the horse died, having developed all the symptons of a pure case of rabies. The Doctor immediately left for Chicago, and received treatment at the Pasteur Institute in that city. Several horses and cows have since died of rabies in Parkersburg.

THE POST-GRADUATE COURSE AT THE NEW YORK STATE VETERINARY COLLEGE.—The following veterinarians are or have been in attendance upon the short course for veterinarians at Ithaca during the winter: E. B. Doyle, V. S., Moravia, N. Y.; A. S. Morrison, V. S., Chesterville, Ontario, Can.; Herbert Killps, V. S., Batavia, N. Y.; Mark D. Williams, D. V. S., Middleport, N. Y.; Daniel M. Kellogg, V. S., Farnum, N. Y.; T. S. Childs, V. S., Saratoga Springs, N. Y.; W. H. Salisbury, V. S., Clifton Springs, N. Y.; E. F. Vorhis, V. S., Owego, N. Y.; W. G. Dodds, V. S., Canandaigua, N. Y.; O. B. French, V. S., Honeoye Falls, N. Y.

HORSES AT THE PAN-AMERICAN.—Superintendent F. A. Converse announces that he is planning to accommodate 1000 horses at the coming Pan-American Exposition. The horse show will not be held until October. The breeds that will be recognized are the Thoroughbred, standard-bred, French Coach, Cleveland Bay, Oldenberg, and other German Coachers, Hackney, Morgan, Arab, Belgian, Percheron, Clydesdale, Shire, French Draft, Suffolk. Shetland ponies and classes will be provided for jacks, jennets and mules. A feature of the equine exhibit will be the classes for cavalry and artillery purposes.

ACETIC ACID FLUID EXTRACTS.—Dr. T. S. Childs, of Saratoga Springs, N. Y., writes as follows: "I have used the fluid extracts made with acetic acid for over three years, and they have given me very satisfactory results, and are anywhere from 40 to 60 per cent. cheaper than the alcoholic extracts. I would very strongly advise those who have not used them to give them a trial. I make this statement because I have lately returned from a visit among a great number of veterinarians in different States, and I failed to find a man using them. I cannot speak too strongly of the satisfaction I have had with them, not only from economy but for their purity and uniform strength. I have given them a good test, and highly recommend them."

TWO CASES OF TWIST.—Robert W. Clarke, M. R. C. V. S., in the *Veterinary Record*, records two cases of torsion of the large colon, which, after giving rise to manifestations of colic, ended fatally. In the first the post-mortem revealed the following lesions: "A twist of the double colon, about two feet of the anterior portion being twisted over from left to right sufficiently to have caused stoppage of the passage of ingesta, there being little or no discoloration of the bowel. That part of the colon anterior (so far as the passage of the contents is concerned, although posterior in position) to the twist was tightly packed with a mass of dry ingesta, as also was the cæcum, but the bowels posterior to the twist were comparatively empty. The colon immediately anterior to the twist was ruptured by the pressure of the contents. That was evidently the cause of death." In the second case the post-mortem showed a twist in the same position, but the bowel was twisted from right to left.

METHODS OF CASTRATION.—A correspondent of the *Breeder's Gazette* says: "The most successful method of castrating bulls is to take them when young—before they get to their feet, and while helpless if you find them at that age. But young and old treat them all alike. After a calf has reached from four to six months, tie him firmly by the head. Have an assistant to hold him firmly by the tail. Stand behind the calf, and, seizing the end of the scrotum, with a sharp knife cut one-third of the length of the scrotum off. The testicles will then hang in 'striffen' so you may take one at a time between thumb and finger and pull down until you can catch it with both hands and pull gently until you have drawn cord and 'striffen' all out, leaving nothing to clog nor stop the opening. Use a preparation made of one-half pint of lard, one-fourth pint of turpentine, and two tablespoonfuls of salt. Mix well; take on the fingers a spoonful of the mixture and insert in the cavity, rubbing well around the wound, and you will never have to catch a calf to treat it, nor will you ever lose one from castration."

RED BALL BRAND STOCK FOOD.—This food is now a thoroughly established article among veterinarians, and the manufacturers report regularly increasing demand from all parts of the country, while those who first began its use are employing it upon an increasing scale. As an intestinal stimulant and digester of herbiverous food it is of great assistance in horses suffering from indigestion, especially due to defective assimilation—those animals which, while partaking of a sufficient quantity of grain, yet remain thin—and those which are bloated and hidebound from fermentation. As a menstruum to disguise worm medicines, tonic powders, or other special prescriptions for systemic effects it is of great service, as horses are fond of it, and they will readily eat it, not only when mixed with their food, but when given alone. It is not a secret mixture, but Messrs. Atkins & Durbrow, the manufacturers, 160 Pearl Street, New York, will send the formula to any veterinarian interested. The chief ingredients are St. John's bread, paltus, celery, the chloride of sodium, etc. We cheerfully recommend it, after years of constant employment.

A DWINDLING INSTITUTION.—On another page we print a very painful statement taken from the AMERICAN VETERINARY REVIEW. According to what is there stated we may in a short time see the complete failure of the efforts of a generous and high-minded corporation to maintain a veterinary school. We feel quite sure that everything has been done at Harvard to give veterinary teaching a fair chance, but of course we cannot expect that university to go on losing money forever. All the same, it is very pitiable and very disheartening to see the gradual decline and the approaching extinction of our branch of medical science there. It will be noticed that the Dean hopes for a public endowment, which will save the department before it reaches its last gasp, but that is problematical. What a chance for a millionaire, what an opportunity of achieving immortality and the grateful applause of his fellows whilst on earth! But it is more; it is an appeal to the American Government to show itself worthy of its great traditions. We trust some wise man will take up the cause of veterinary medicine, and pass a measure which will secure the future of an excellent institution. With its enormous extent of territory, its vast breadth of corn-land, requiring the help of horses for its cultivation, its huge cities, and its immense net-work of railways, America ought to make the care of its domestic animals and the study of their health conditions one of its most important public departments. No excuse ought to be necessary on the part of American statesmen for introducing a bill to this effect. Let our own Government take warning. It has callously left veterinary schools in this country to sink or swim as they chose, and now, with a great war on its hands not yet completed, and a dreary prospect of a difficult settlement in South Africa, it finds itself relying on the help of private individuals, whom it has studiously ignored. We will do our duty to our king and country whilst strength remains, but that strength is not inexhaustible, it may give way at any moment. Veterinary studies are fairly well organized in this country, but there is an economic weakness which may develop into a calamity. Never was there such an opportunity for a comprehensive measure by a strong government. No enormous sum is required to put veterinary teaching in England and Scotland on a sound and enduring basis, and so to remove a grievance and deal out equal justice to the three kingdoms. But once let existtng institutions and their organizations disappear, and it will be very difficult to reconstruct them. We say, long live King Edward! and may he inaugurate a glorious reign by showing his appreciation of the labors of veterinary surgeons!—(*Veterinary Journal*, *London*, *January*, *1901*.)

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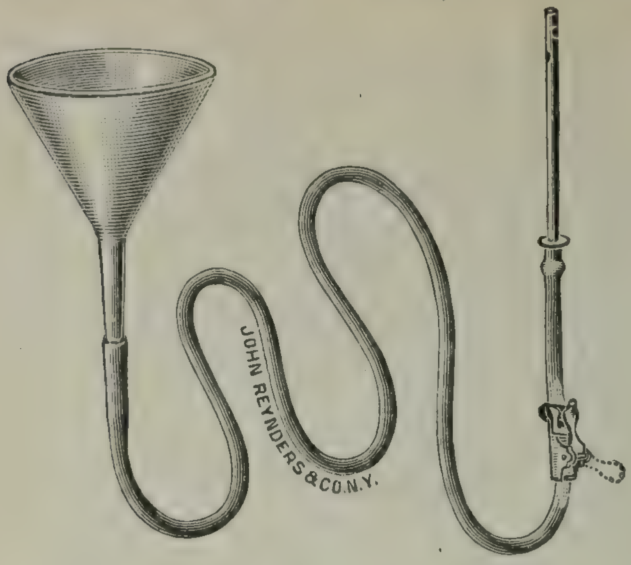
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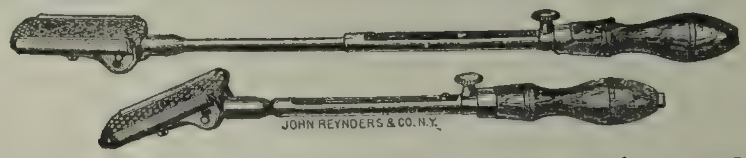
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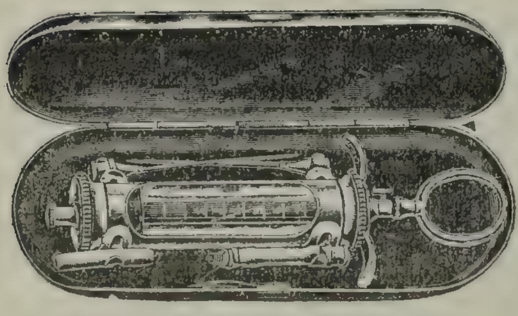

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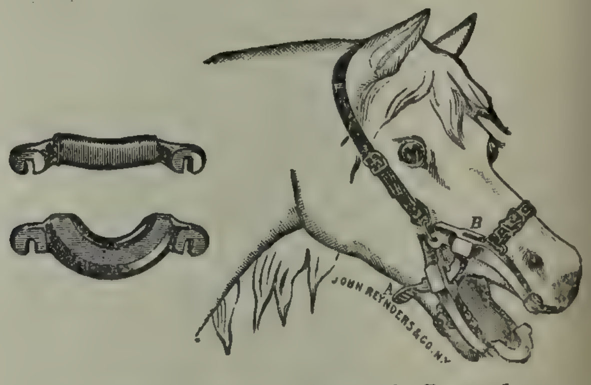

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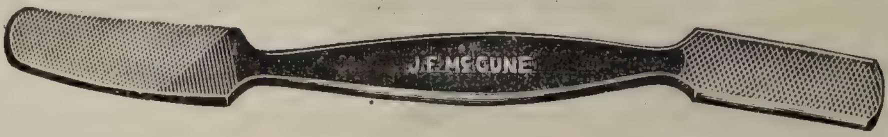

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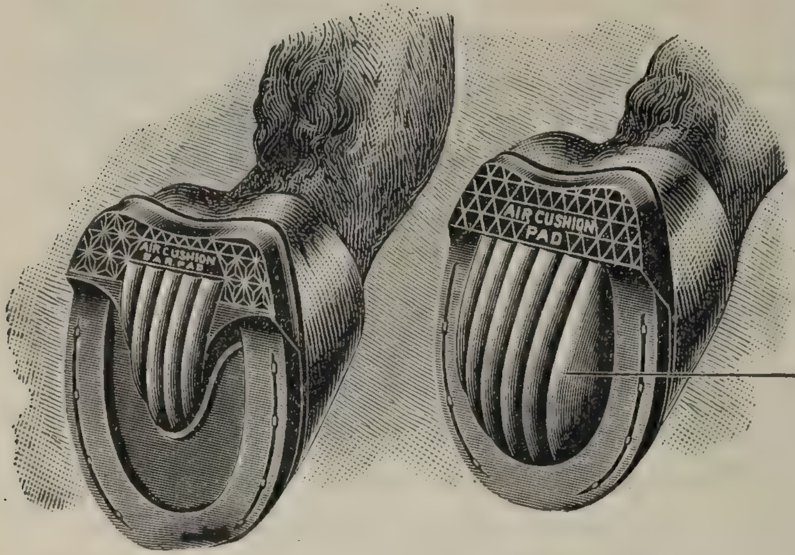

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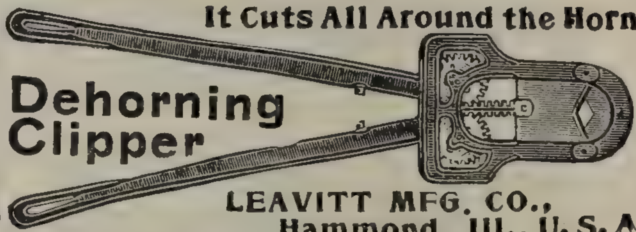

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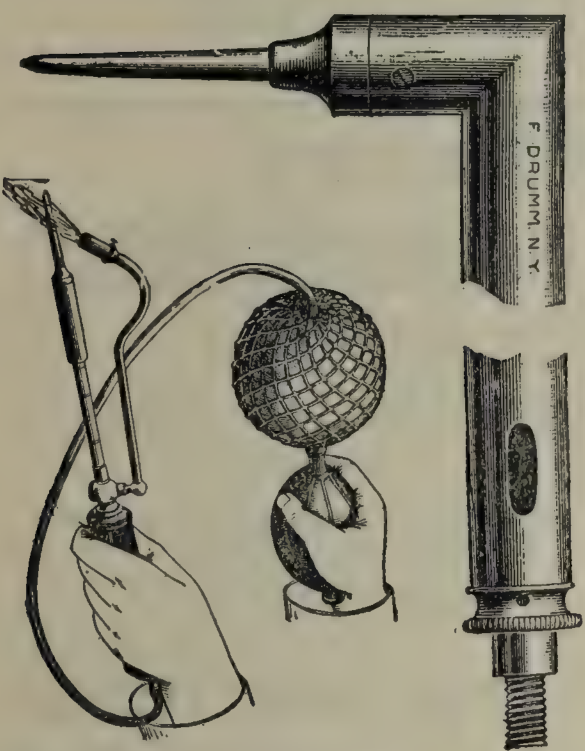

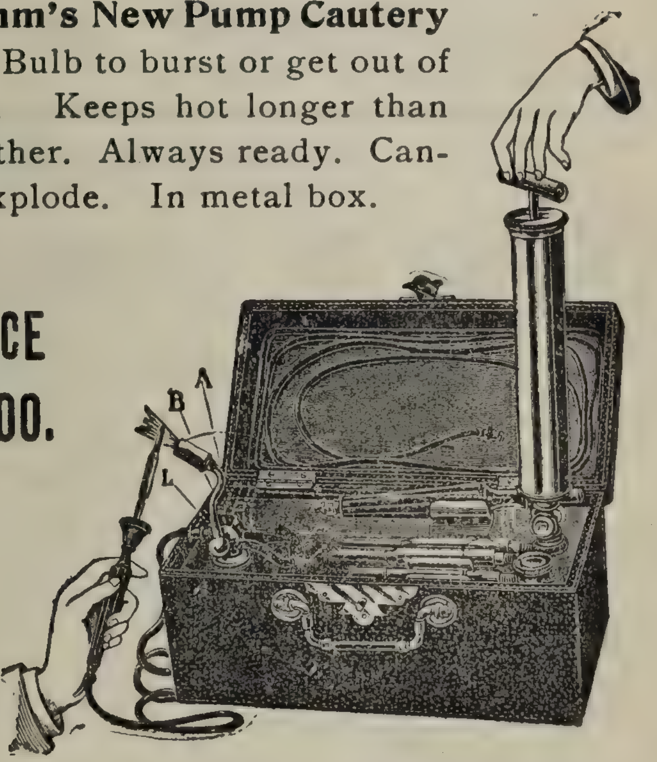

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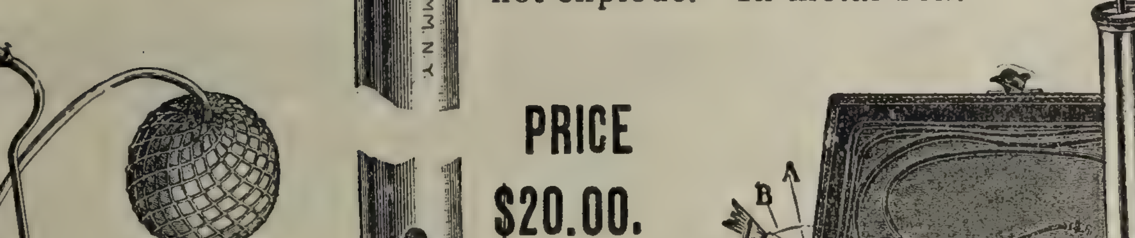

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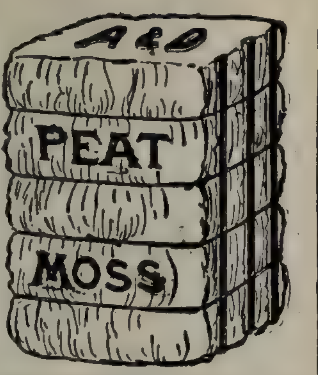

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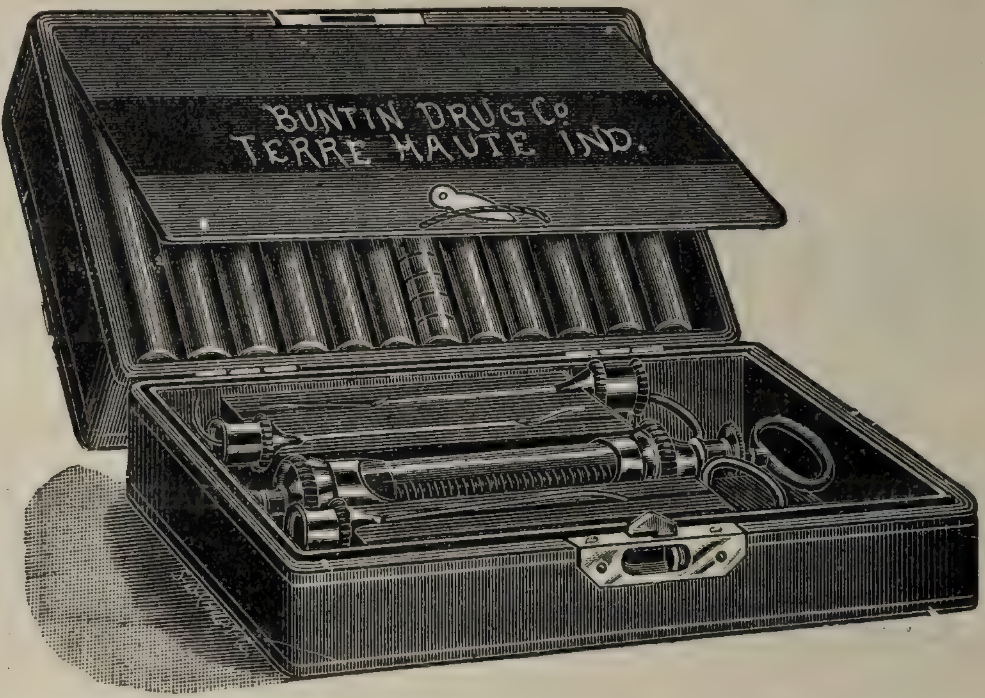

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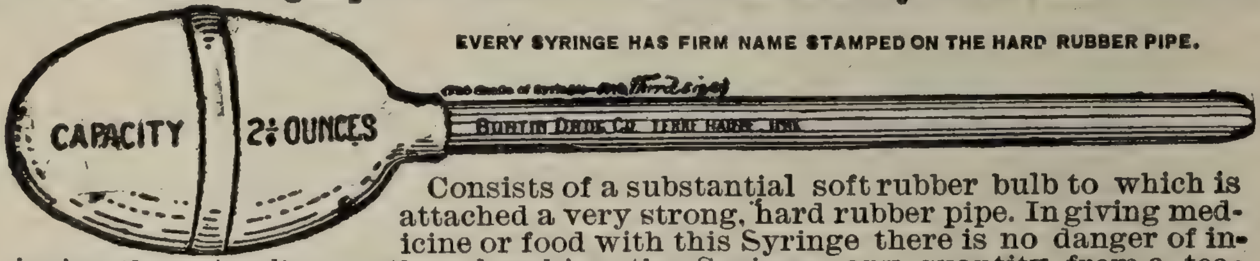
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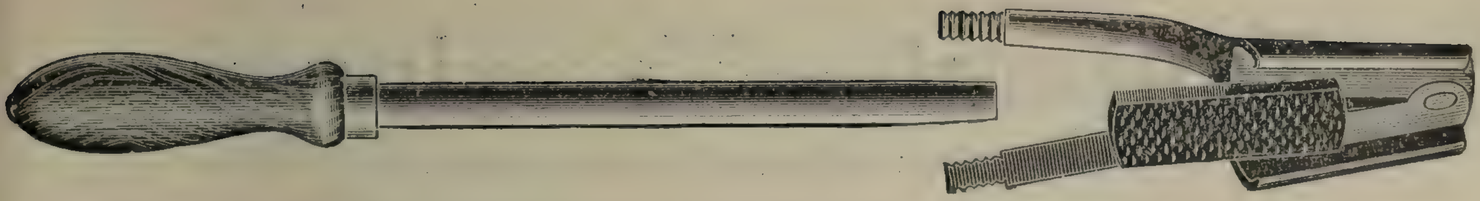

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